Maine East-West Highway: Economic Impact Analysis

Phase II Technical Report Survey Research and Commodity Forecasts

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I Introduction

Overview

The primary purpose of this report is to present and summarize the findings of business and tourism survey research which was undertaken for the economic impact analysis of the proposed Maine East-West Highway. In addition, the report presents the findings of a 1997-2015 forecast of commodity flows to and from Maine and to/from Atlantic Canada.

The survey findings and commodity flow projections are both important indicators of potential growth in travel demand to and through the State of Maine. The broad objectives of survey research were to:

a. Develop a baseline of information concerning current business (freight) and tourism traffic to/from Maine and those surrounding regions that would become more accessible to the State if an east-west highway were built;

b. Gain insights into how businesses and potential visitors might respond to potential improvements to east-west transportation routes through Maine;

c. Obtain information that can be used to help refine quantitative projections of business (truck) traffic and tourism travel growth associated with each of the proposed East-West Highway corridors; and

d. Determine whether businesses and potential tourists exhibit any "preferences" in terms of the five conceptual corridors evaluated in this report.

In addition to the above objectives, the business survey solicited information and opinion on a variety of issues related to US Canada Trade. These questions addressed perceived current and future trade opportunities and impediments, the potential contribution of an East-West Highway toward increasing trading relationships with Canadian businesses, and the possible effects of tolling the highway.

The commodity flow forecasts provide an additional source of insight into current and future regional trading relationships and freight movements to, through and around Maine. Baseline (1997) estimates of Maine and Atlantic Canada commodity (tonnage) flows by origin/destination, commodity type and mode of transportation were previously reported in the Phase I Technical Report. These baseline estimates have since been updated and refined, and are used in this report to forecast the potential growth in freight movements from 1997 to 2015.

These forecasts are an indicator of the potential future volume of freight that will need to be transported by truck, rail and ship, by the time an east-west highway could actually be placed in service. Forecasted percentage changes in total tonnages of

commodities moved to, from and through Maine and Atlantic Canada are an obvious indicator of future growth in shipments or trips which will be required to transport those goods. The commodity flow forecasts are one of several inputs to a statewide traffic model that is being used to forecast future truck traffic for the various conceptual east-west highway corridors.

East-West Highway Corridors

The Phase I Technical Report discussed the process that was used to select five conceptual highway corridors on which to base the economic impact analysis. Because the corridors are referenced in the survey research, a map and descriptions of the corridors are provided for reference. These corridors include three upgrade alternatives and two corridors on new alignments, as shown on Map I-1 and described below[1]:

Corridor Upgrade Alternatives

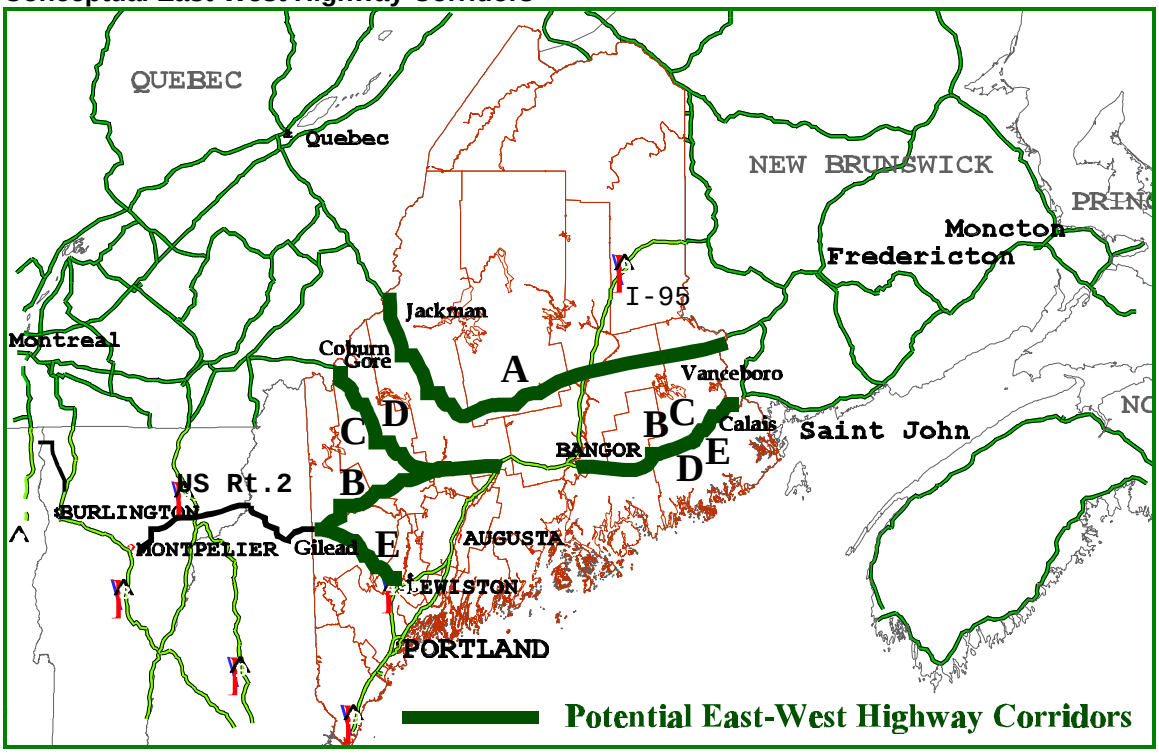
Corridor "A": ***The Trans-Maine Trail (Alternate)*** This corridor begins at the Canadian border in Vanceboro and proceeds westerly via Route 6 through Lincoln, Milo, Dover-Foxcroft, and Guilford to Abbot, then westerly via Route 16 to Bingham. The trail proceeds northerly along Route 201 to Jackman and Sandy Bay at the Canadian Border. (Includes Routes 6, 16 and 201)

Corridor "B": *The East-West Highway* As defined in statute, this corridor begins at the Maine / New Brunswick border and proceeds westward along route 9 to Route 46 in East Eddington. The corridor continues southerly along Route 46 to Route 1A in East Holden, then westerly along Route 1A to I-395 in Brewer and connects with I-95 at or near Bangor. It then continues southwesterly along existing I-95, leaving I-95 in Newport. From this point, it continues westerly along Route 2 to the Maine / New Hampshire border at Gilead. (Includes Routes 9, 46 1A, I-395, I-95, & 2)

Corridor "C": *The East-West Highway (Alternate)* Beginning at the Maine / New Brunswick border, this corridor proceeds westward along Route 9 to Route 46 in East Eddington. The corridor continues southerly along Route 46 to route 1A in East Holden, then westerly along Route 1A to I-395 in Brewer and connects with I-95 at or near Bangor. It then continues southwesterly along existing I-95, leaving I-95 in Newport. From this point, it continues westerly along Route 2 to Route 27 in Farmington, then continues northwesterly along Route 27 to the Maine / Quebec border at Coburn Gore, linking Sherbrooke and Montreal via Quebec Route 10. (Includes Routes 9, 46, 1A, I-395, I-95, 2 & 27)

[1] Corridor definitions were provided by the Maine Department of Transportation.

Map I-1
Conceptual East-West Highway Corridors



Corridors on New Alignments

Corridor "D": This corridor is a limited access 4-lane highway, predominately on new alignment, beginning at the Maine / New Brunswick border, at a location somewhere in the vicinity of Calais / Baileyville and connecting to Saint John Fredericton, and Moncton via NB Routes 1, 2 and 3. The corridor then proceeds westward along or south of Route 9, connecting with I-395 and I-95 at or near Bangor, and continues southwesterly along existing I-95, leaving I-95 at a point between Newport and Augusta. From this point, it continues northwesterly to the Maine / Quebec border at or near Coburn Gore, linking Sherbrooke and Montreal via Quebec Route 10.

Corridor "E": Also a limited access 4-lane highway, predominately on new alignment, this corridor begins at the Maine / New Brunswick border at a location somewhere in the vicinity of Calais / Baileyville and connecting to Saint John Fredericton and Moncton via NB Routes 1, 2 and 3. The corridor then proceeds westward along or south of Route 9, connecting with I-395 and I-95 at or near Bangor, and continues southerly along existing I-95 / I-495, leaving I-95 / I-495 at a point between Augusta and Gray. It then continues in a generally northwesterly direction to the Route 2 corridor crossing into New Hampshire at or near Gilead, linking New Hampshire, Vermont, and Montreal via Route 2 and I-89.

The collection and presentation of information in this report are intended to support the development of policy simulations for the economic impact forecasts. This progress

report is organized around the above objectives and presented in three sections. Chapter II presents the findings of the commodity flow forecasts prepared by Standard & Poors' DRI. This section projects commodity flows by type, origin / destination and mode of shipment, into and out of the State of Maine and Atlantic Canada, from 1997 to 2015. Chapter III summarizes the findings of the business surveys and the tourism survey results are presented in Chapter IV. The appendix to this report also contains tables which provide detailed survey response data, as well as sample questionnaires and other source data for the findings presented in the text.

The following section provides a summary of the overall findings of the baseline research presented in Chapters II through IV, and their potential implications for the development of an east-west highway through Maine:

Summary Findings

Commodity Flows[2]

- In 1997, total Maine cargo carried by rail, truck, or water, to / from the rest of the US, was estimated at 14.3 million tons (outbound) and 8.6 million tons (inbound), respectively. Roughly 79% of outbound tonnage and 46% of the inbound tonnage was carried by truck, a total of nearly 15.2 million tons moved in both directions.

- **Total annual commodity movements to and from Maine will grow substantially by the time an east-west highway comes on line.** Total Maine tonnage to / from the US is forecast to grow at an average annual rate of 2.5% (outbound) and 2.0% (inbound) through 2015, growing to nearly 34.7 million tons per year by the end of the forecast.[3] Trucks are projected to maintain their current share of outbound movements, but steadily gain market share of inbound freight movements over the forecast period. Total freight carried by truck will exceed 23.8 million tons in both directions by 2015, an increase of more than 8.6 million tons over 1997 levels.

- **Freight movements from Atlantic Canada to the US are projected to grow dramatically by 2015.** In 1997, 25.6 million tons of freight left Atlantic Canada bound for the US, with 81% by water, 13% by truck and 6% by rail.[4] Inbound freight from the US is of considerably lower volume at 2.7 million tons in 1997. Total Atlantic Canada freight movements to the US are projected to increase at a rapid 6.2% average annual rate, while freight from the US is projected to rise at a slower 4.9% annual rate. Water borne cargo is projected to retain the dominant modal share of these movements, due in part to the expected long-term expansion of the Port of Halifax.

- **The majority of truck freight shipped outbound from Atlantic Canada is already**

[2] 1997 commodity flow estimates presented below have been adjusted from the preliminary estimates which appeared in the Phase I Technical Report. Reasons for the adjustments are discussed in the Introduction to Chapter II.

[3] Forecast year 2015 is assumed to coincide with the construction completion date for an east-west highway.

[4] These1997 totals are substantially higher than previously estimated in the Phase I Report.

likely to move through Maine. Projected combined truck and rail shipments from Atlantic Canada to all other North American destinations, is projected to grow from roughly 9.2 million tons in 1997, to 15.1 million tons per year by 2015, an increase of nearly 5.9 million tons in total and 327,000 tons per year. The majority of this freight, roughly 5.1 million tons, is already likely to be carried to or through Maine to other US destinations. Atlantic Canada truck and rail freight, to destinations that are likely to be accessed through Maine, is projected to grow to nearly 9.2 million tons, more than 227,000 tons per year, to 2015.

- Outbound Atlantic Canada truck and rail freight to other Canadian destinations, is projected to grow from roughly 4.1 million tons in 1997, to 5.9 million tons per year by 2015, an increase of 1.8 million tons or roughly 100,000 tons per year. Some portion of this total tonnage may represent additional potential to be diverted to an east-west highway through Maine.

- Combined inbound truck and rail shipments to Atlantic Canada, from all North American points of origin, is projected to grow from just under 8.8 million tons in 1997, to 13.3 million tons per year in 2015, an increase of 4.5 million tons in total and 252,000 tons per year over the forecast period. At present, a modest portion of this total freight. In 1997, roughly 1.7 million tons was likely to be carried to and through Maine en route to Atlantic Canada destinations. That total is projected to grow to nearly 4.1 million tons in 2015, a growth of nearly 130,000 tons per year. Combined truck and rail tonnage from other Canadian points of origin to Atlantic Canada, is projected to grow from roughly 7.0 million tons in 1997 to 9.2 million tons in 2015, an average growth rate of 122,000 tons per year over the period. Some portion of this inbound Canadian freight is also a candidate for diversion to an east-west highway through Maine.

Table 1-1: Summary of Projected Truck Freight Movements to, Through and Around Maine, 1997-2015

Annual Truck Freight Movements by Origin-Destination Pairs	Bi-Directional Flows (Millions of Tons)		Growth: 1997-2015		
	1997	2015	Total Change	Annual Average	Annual Growth Rate
Maine-US	15.2	23.8	8.6	0.48	2.5%
Maine-Canada	4.8	9.2	4.4	0.25	3.7%
Canada-US, Through Maine	2.6	6.9	4.3	0.24	5.6%
Subtotal: Truck Freight to, from and Through Maine:	**22.6**	**40.0**	**17.4**	**0.97**	**3.2%**
Potential Diversion: Canada-Canada Truck & Rail:	11.4	14.7	3.3	0.18	1.4%
Total E-W Highway Potential:	**34.0**	**54.7**	**20.6**	**1.15**	**2.7%**

- **Total bi-directional truck freight carried to, from and through Maine is projected to grow by almost 1.0 million tons per year through 2015.** Table 1-1 summarizes current (1997) and projected (2015) bidirectional truck freight movements between Maine-US, Maine-Atlantic Canada and Atlantic Canada-US origin destination pairs, that are likely to be moved through Maine. In addition, the table shows combined Canada-Canada truck and rail flows that are potential candidates for diversion through Maine if an improved east-west transportation link were to be developed. As shown, total bidirectional truck freight that is already likely to move to, from or through Maine, is forecast to grow from 22.6 million tons to 40.0 million tons by 2015. This represents an average growth rate of 970,000 tons (3.2%) per year over

the forecast period.

- **Projected growth in the tonnage of commodities moved by truck will generate substantial increases in traffic to, from and through Maine, by the time the proposed east-west highway comes on line**. Even if one assumes a fully loaded average of 40 tons per shipment, the projected growth in commodities moved by truck, will generate a minimum required increase of nearly 25,000 truck trips per year over the forecast period. By 2015, annual truck movements on state highways may be 500,000 higher than 1997 levels.

- **The potential to divert Canada-Canada freight movements through Maine is modest relative to projected truck volumes that are <u>already</u> likely to move through the State**. Roughly 11.4 million tons of truck and rail freight moved between Atlantic Canada and the Central and Western Provinces in 1997. This volume is projected to grow to 14.7 million tons by 2015, an average of 180,000 tons (1.4%) per year over the forecast period. Some portion of this freight could also be diverted onto a Maine East-West Highway. As indicated in the table however, current and projected truck freight generated by O-D pairs that are already likely to move to, from or through Maine, greatly exceed Canada-Canada flows in both the aggregate and in their projected rates of growth over the forecast period.

Tourism Survey Research

- Findings from extensive interviews with tourism leaders from various regions of Maine, suggest that the proposed east-west highway will have modest support from those in the tourism industry. Several regions where the proposed highway corridors would be located, do not currently have significant numbers of Canadian visitors. Some local tourism leaders interviewed in Central and Northern Maine, are doubtful that an east-west highway would significantly increase Canadian visitation to those regions. The primary reason given for low Canadian tourism currently was not highway access, but rather the availability of comparable attractions (i.e. lakes, mountains and wilderness areas) in Canada. At the same time, the majority of tourism leaders expressed the opinion that an east-west highway will benefit Maine tourism overall, by improving access to the state for both Canadians and northern New England residents. Increased visitation resulting from an east-west highway was more likely to benefit existing Canadian destination spots in southern and coastal Maine, rather than in northern Maine. Some tourism leaders also believe that an east-west highway could facilitate the movement of tourists once in Maine, perhaps encouraging them to extend their stays.

- In addition to interviews with state tourism officials, a telephone survey of 2,000 households was conducted to assess the tourism potential of a new east-west highway. The specific objectives of the research were to (1) determine the amount of travel to and through the State of Maine from these key market areas in 1997 and 1998; (2) evaluate the characteristics of these trips to and through Maine and determine where people traveled, how long they stayed and what routes they used; and (4) test the theoretical impact of improved highway access and travel time savings on future visitation to the state. Survey interviews were conducted in telephone exchanges located in and near Quebec City, Montreal, Toronto; New Brunswick's major cities (Saint John, Moncton and Fredericton); Halifax, Nova Scotia, Northern New Hampshire and Vermont and Upstate New York. Summary

findings from the survey include the following:

1997 & 1998 Trips TO Maine

- In total, residents of these key market areas took an average of 0.28 trips to Maine (per household) in 1997 and 1998.

- The average yields an estimated 365,201 trips to Maine in 1997 and 1998 (combined).
  - 58% of these trips were in 1998, and
  - 42% were in 1997
  - 23% of these trips were day trips, and
  - 77% were overnight trips.

- The average number of people on each of these trips to Maine was 2.85.

- The average number of nights visitors stayed in Maine during these trips was 2.88.

- The most frequently mentioned primary destinations in Maine were:
  - Portland,
  - Old Orchard Beach, and
  - Calais.
  - Among all destinations listed, the majority were in York County and Cumberland County.

- An estimated 2,824,032 person-nights were spent in Maine in 1997 and 1998 among tourists living in these key market areas.

1999 Trips TO Maine

- Residents of these same markets plan to take 0.15 trips (per household) to Maine in 1999.

- This average yields an estimated 209,311 trips to Maine in 1999, about the same number as in 1998.

- Of those who indicate that they plan to travel to Maine in 1999, 59% had not traveled to Maine in 1997 or 1998.

- When presented with the concept of highway improvements, 15% of key market residents indicate that they would take more trips to Maine if the highway improvements and saved travel time were to occur.

- Respondents indicated that they would expect to make 346,267 more trips to Maine if travel times to Bangor were reduced by amounts that could be achieved by an east-west highway.

- Yet, of those who indicated that the highway improvements would lead them to take more trips to Maine:

  - 67% had indicated earlier in the survey that they did not plan to travel

to Maine in 1999, and
- 82% had not traveled to Maine in 1997 or 1998.

- Reducing long travel times is apparently appealing to those who have not recently visited Maine, intriguing them to say they'll do so. Due to the fact that much of the increase in visits would occur among those who do not have recent experience traveling to the state, it may be difficult to predict where their destinations would be or if their response might change should a specific corridor be defined.

1997 & 1998 Trips THROUGH Maine

- Key market residents took an average of 0.13 trips (per household) through Maine on their way to other states or provinces in 1997 and 1998.

- The average yields an estimated 322,647 trips through Maine.
  - 51% of those trips were taken in 1997, and
  - 49% were taken in 1998.

- The average number of people on these trips through Maine was 2.79.

- The average number of nights spent in Maine during these trips was 1.27.

- The primary destinations on these trips through Maine were:
  - Nova Scotia,
  - Florida, and
  - New York.

- 61% of the primary destinations were in the United States, and 39% were in Canada.

- Among Canadian visitors making trips through Maine on their way to other locations,

  - 76% were traveling to destinations in the United States, and
  - 24% were traveling to destinations in Canada.

- An estimated 876,183 person-nights were spent in Maine in 1997 and 1998 on these trips through Maine.

Estimated Impact of an East-West Highway on Tourism Travel

- Survey respondents indicate that the proposed highway improvements will be an incentive for a sizable proportion of people to travel to Maine more often. It is important to note that the survey found significant levels of recent travel to and through Maine, even from markets as far west as Toronto. A significant percentage of these respondents, about 15%, indicated that their travel patterns to or through Maine could be influenced by an improved east-west transportation route within the state. Among some respondents, even very modest time savings, relative to the total trip length required to reach and return from Maine, would be sufficient to induce them to make more trips to or through the state. These results are encouraging and suggest that an east west highway would generate an increase in

tourism travel to Maine.

- The combined effects of travel time savings on potential trips to and through Maine, along with the associated number of person-nights spent in the state, are summarized in Table 1-2. These estimates reflect the combined impacts of reduced travel times and improved highway access to/through Maine on all of the market areas surveyed. If travel time savings indicated in the survey instruments could be simultaneously provided to all of the market areas surveyed, the collective impact produces an increase of roughly 1.3 million trips 6.1 million visitor days.

Table 1-2: Respondents' Reactions to Potential Time Savings Associated with Conceptual East-West Highway Corridors

Impact on Travel to Maine	
Increase in Trips to Maine	346,267
Increase in Person-Nights Spent in Maine	2,968,387
Impact on Travel through Maine	
Increase in Trips through Maine	953,610
Increase in Person-Nights Spent in Maine	3,191,695
Total Potential Impacts on to- and through-travel	
Number of Trips	1,299,877
Number of Person-Nights Spent in Maine	6,160,082

- It should be noted that when surveying each target market, the potential time savings presented to survey respondents reflected the maximum savings associated with the conceptual corridor which best served that particular region. **No single east-west corridor is capable of providing comparable time savings to all of the markets sampled by the survey**. Therefore, applying these survey results to project actual annual visitation to Maine, to any single conceptual east-west highway corridor, must be approached very cautiously. In addition, respondents were only asked to anticipate their travel plans over the next year; projecting these figures to continual travel over a longer period of time is difficult. Also, respondents were not presented with specific highway corridors; rather, they were given one single time saving to one particular destination. Respondents may have mistakenly assumed that this same time savings would apply to all of their normal destinations in Maine. Finally, it is not uncommon to discount respondents' stated intentions by large percentages in order to arrive at the actual actions they may undertake. All of these factors need to be considered when converting the survey findings to actual projections of market response to each individual proposed east-west highway corridor.

Business Survey Research

The business survey effort returned data from a significant sample of Maine's largest companies. The survey returned an equal number of responses from both northern and southern regions of the state and included representation among several industry groups. Highlights include the following:

- **The survey effort specifically targeted companies that would be most likely to have an interest in the proposed east-west highway**. The survey was administered to a cross-section of the State's largest companies, in those industries which are most sensitive to transportation issues. In total, just over 40% of the sample, more than 500 companies, were are located in northern Maine while the balance of nearly 800 firms were located in the more heavily populated southern region.

- **A well-represented cross section of responses was received, both geographically and among industry groups.** More than 150 responses were received, an 11.5% return on from the initial mailing list. Returns were equally distributed between the northern and southern regions, with 76 returns received from each. In total, these companies have more than 19,600 full-time employees, including more than 16,300 workers at the locations represented in the survey.

- **Survey respondent already have significant numbers of customers and suppliers in regions that could be made more accessible by an east-west highway.** More than 49% of respondents, statewide, have customers and/or suppliers in Atlantic Canada, 47% in Quebec, 26% in Ontario/Western Canada, 55% in northern NH/VT, 56% in Western NY and 60% in the Midwest and Western US. These percentages indicate that at least half of the statewide sample currently does business in regions that could be made more accessible to the interior Maine, via an east-west highway corridor.

- **More Maine firms characterize their markets to the south and west as "growing" than Canadian markets.** For respondents with Atlantic Canada customers, less than 38% characterized recent sales trends as "growing", while higher percentages of respondents characterized their sales to Quebec (45%) and Ontario (58%) as growing. By comparison, more than 70% of firms with customers in Southern NE, the Middle-Atlantic and Midwest US have recently experienced growing sales to those regions. Among Maine companies with Canadian customers, the fact that more describe sales as "declining or flat" than growing, is perhaps a reflection of recent unfavorable exchange rates, as was indicated elsewhere in the survey.

- **Roughly a third of all respondents appear to view Canada as a potential growth market in the future.** Maine firms are primarily looking to other US regions for sales growth. In the short term, higher percentages of respondents expect to increase sales within Maine, to Southern New England and the Mid-Atlantic States, the Midwestern US, and Northern NH/VT, than to Canadian markets. Also, the percentage of Maine firms that are unlikely to do more business in Canada, is much larger than the percentage of firms that expect to increase Canadian sales. There is very little difference in expectations between southern and northern Maine companies on this issue.

- **The survey findings suggest that improved westbound highway access may be more important for freight traffic originating in Maine than eastbound access.** Numbers of outbound truck shipments westbound to Ontario and Quebec, exceed eastbound shipments to Atlantic Canada by a factor of 2.3 to 1. Westbound shipments to Upstate NY, the Midwest and Western US also exceed the volumes headed for Ontario and Quebec. It is also interesting to note that total monthly shipments leaving northern Maine greatly exceed southern Maine.

- **Rail does not currently carry significant volumes of outbound freight to those regions that would be serviced by an east-west highway.** Respondents ship virtually no product to Canada and limited volumes westbound to US destinations, by rail.

- **Although a minority of Maine firms appear to encounter problems when shipping or receiving goods to/from the regions listed in the survey, problems are significantly greater in those areas which could be improved by an east-west highway.** The largest percentage of firms (more than 25%) reported encountering very frequent or frequent problems, when sending or receiving shipments to/from other locations within Central and Northern Maine. The percentage of Maine companies that encounter transportation problems when shipping to/from Atlantic Canada (21%) or Quebec (22%), is also higher than the other regions listed. The smallest percentage of companies report encountering transportation problems, when shipping/receiving freight to or from Southern New England and points south (6.3%) and Upstate New York (9.5%).

- **No single east-west corridor clearly emerges as a preferred alternative among survey respondents.** When respondents were asked to rank each conceptual corridor on the basis of its likely level of use by that company and its suppliers, the reported average for the entire statewide sample did not exceed 3 (the mid-point) for any corridor. Even Northern Maine respondents, composite scores for all Corridors were also below 3. The percentage of respondents ranking each Conceptual Corridor a "1" (low use), exceeded those indicating "5" (high use) in each case, even when responses were isolated for northern and southern Maine.

- **As could be expected there are regional differences in projected levels of use and "preference" among the five Corridors.** Among Northern Maine firms, the 4-lane Calais to Coburn Gore Corridor (D) ranked highest, by a slight margin over the Route 2 and Route 9 upgrade (Corridor B) from Calais to Gilead. Southern Maine firms indicated that they would be most likely to use the four-lane Corridor (E) linking Lewiston-Auburn to the NH Border at Gilead. It is also interesting to note that the incremental improvement of the Calais to Coburn Gore route from a 2-lane upgrade (Corridor C) to a four-lane highway (Corridor D), did not produce a large increase in the anticipated use of that route, among either statewide or Northern Maine respondents. When asked to rank the Corridors, with 1 signifying first preference, among all respondents statewide, Corridors C & D ranked first with the same score, followed by B, E and A. Among respondents located in Northern Maine, the order was similar, with Corridor A moving from 5 to 3. Southern Maine firms, ranked Corridors E and B one and two.

- **When presented with a list of possible economic benefits that might arise from the construction of their "preferred" east-west highway corridor, about 20% to 40% of the respondents actually expected their companies to benefit.** Nearly 39%

of respondents statewide believe that their preferred corridor would be "highly likely" or "likely" to lower their firms' shipping costs within Maine, compared to a slightly smaller portion of the sample (35%) who did not expect a lowering of shipping costs. When asked if the highway would increase the firms' cost competitiveness, these percentages were reversed. A smaller percentage of companies (25%) believe that their preferred corridors would help them do more business with Canada, and fewer still (21%) believed that their preferred routes would facilitate commuting for employees. Because of the geographic dispersion of survey respondents, the maximum percentage of firms that are likely to derive economic benefits from any single Conceptual Corridor reduces these reported rations by more than half.

- **An east-west highway is not likely to cause a significant movement of firms within the State.** Just under 23% of respondents, indicated that they would be "highly likely" or "likely"to expand operations at their existing facilities if their "preferred" east west corridor was built. The potential of a new highway to induce movement of existing firms around the state appears to be minimal, as less than 2% indicated that they might move closer to a new highway. About 12% thought that they might expand at another location within the state, 6.2% might expand in Canada and less than 3% might expand elsewhere in the US.

- **From the current perspective of Maine businesses who responded to this survey, the State's failure to improve east-west transportation routes would not appear to have a negative influence on future expansion decisions.** More than 24% of respondents indicated that they will be "highly likely or likely" to expand at their current locations, absent of the highway's construction. This percentage was slightly higher than the response to the preceding question, which assumed the existence of a new highway. A slightly smaller percentage of firms indicated that they would be likely to expand elsewhere in Maine if no highway improvements were made, fewer firms indicated that they would be likely to expand in Canada, absent of an east-west highway, but more may decide to expand elsewhere in the US.

- **Survey respondents are split concerning where an east-west highway should rank as a priority among other transportation needs over the next 20 years.** Statewide, a minority of respondents with an opinion on the issue, ranked the east-west highway as either a "highest" or high"priority over the next 20 years, with the 4-lane Corridors (35%) ranking lower among respondents than a 2-lane improvement (43.2%). Significant numbers also ranked either option as either "low or not a priority", 31.5% for the 2-lane and 43.5% for the 4-lane corridors. Among Northern Maine businesses, a majority (52.5%) rank the two-lane Corridors as either a highest or high priority, compared to only 24.6% who hold the opposite view. It is interesting to note that the four-lane Corridors rank lower than the two-lane even among northern Maine firms, with only 39.7% characterizing them as a highest or high priority, compared to 41% who characterized them as a low priority or not a priority.

- **Among impediments to increased Canada trade faced by Maine companies, transportation issues rank lower than economic and regulatory issues.** Respondents were asked to rate ten listed impediments to increased Canadian trade in order of importance from 1 (none) to 5 (high). Among those, regulations/red tape ranked highest (3.46), followed by exchange rates (3.44) and competition from

other US & Canadian firms (3.30). Among other factors that ranked above 3.0, "shipping costs" ranked 4th (3.24) followed by Canadian economic conditions (3.19), and border crossing / Canadian Customs (3.09). The quality of "highway access" to Canada scored 3.04, 7th among the ten issues listed.

- **Respondents would accept <u>limited</u> tolling of an east-west highway.** Among persons with opinions, more than half indicated that toll rates of less than 10¢ per mile would not negatively influence their usage of the highway. However, substantial resistance to tolls is indicated at higher rates among those persons with an opinion. At an average toll rate of 16¢-20¢ per mile, the combined percentage of respondents with opinions who would be "very likely" to reduce travel or "would not use" the highway, rises to nearly 64%. At average toll rates above 20¢ per mile, the majority of respondents with opinions would not use the highway.

II
Commodity Flow Forecasts

Introduction and Methodology

The purpose of this section is to forecast and describe the projected flow of commodities into and out of the State of Maine and the Atlantic Provinces through the year 2015. During Phase I of this study, estimates of commodity movements by mode, commodity type and major regional origins and destinations, were developed for calendar year 1997. In the following section, similar forecast information is presented for the years 2000 and five-year increments to 2015.

All values discussed in this section are measured in tons rather than dollars, in order to provide a basis for converting the data to vehicle (truck) trips. The forecasts address the types of commodities moved through these regions, the origins and destinations of shipments and the modes of transportation used to move various types of commodities. Data presented for the State of Maine includes commodity flows to and from other US markets, in addition to imports and exports to/from Canadian markets. Similar information is also provided for the Atlantic Provinces.

The methodology used to generate the commodity flow estimates is described in the following paragraphs.

Commodity Compass Freight Database

Standard & Poor's DRI has developed a comprehensive forecast database of freight flows, with identification of origins, destinations, commodities, and primary shipment mode. The database covers all counties of the United States, and also includes overland trade between U.S. counties and Canadian provinces and Mexican states. Commodities are specified to the four-digit Standard Transportation Commodity Code (STCC) level. Modes are distinguished as air, inland water, rail carload, rail intermodal, private truck, truckload, and less than truckload. Annual forecasts of tons and ton-miles have been developed in the data base through 2020. Information for this analysis was developed to 2015 and is reported in this section.

The database was designed to support flexible, diverse, and varied custom aggregations. The forecasts presented and discussed in this book were developed through geographic, commodity, and modal aggregation of the more detailed forecasts in the Commodity Compass Freight Database. Consequently, the following discussion of the methodology supporting the Freight Database provides an understanding of how the forecasts in this book were constructed.

Forecast Process

Forecast development began by identifying historical patterns of freight flows by origin, destination, commodity, and mode. These flows were then attributed to production and demand by commodity and county, and to imports and exports for counties with ports.

From the perspective of domestic transportation, the volume of freight originating in a county is the sum of what is produced in the county plus what enters the United States through the county's ports. Similarly, the total domestic freight terminating in a county includes both what is used there and what goes there to leave the nation through the county's ports.

Crucial resources supporting the historical picture included production and demand data from DRI's Regional Economic Service, international shipping volumes for DRI's World Sea Trade Service, domestic freight volumes from Reebie Associates' Transearch database, and import and export volumes from the Port Import/Export Reporting Service (PIERS).

Central to the forecast process is a set of mode- and commodity-specific gravity models. These gravity models mathematically formalized the historical patterns among the geographies of freight origination (production plus imports), termination (domestic demand plus exports), and commodity movement. A separate gravity model was developed for each commodity/mode combination. A fundamental premise of the gravity model is that, other things being equal, demands for a commodity are more likely to be served by nearby rather than distant sources.

Forecasts of future originations and attractions by county were driven by sectoral forecasts from DRI's Regional Economic Service and by international trade forecasts from DRI's World Sea Trade Service. Embedded in these forecasts are evolutions in the geographic patterns of freight origination and termination. Annual freight flow forecasts were achieved by applying the gravity models to link patterns of origination with patterns of termination.

Data Limitations

While the database provides extensive modal and commodity coverage, there are omissions. These gaps appear in the historical portrait and are perpetuated in the forecasts. The omissions are primarily in commodities for which the missing modes account for small shares of total tons and smaller shares of ton-miles. While we believe the omissions are of minimal importance to the broad picture of freight flows, there will inevitably be potential applications in which they are burdensome.

Most of the omissions arise in the truck modes. We have neither private truck nor truckload data for commodities with the following two-digit STCC codes:

08 Forest Products
09 Fresh Fish or Marine Products
10 Metallic Ores
11 Coal
13 Crude Petroleum or Natural Gas
14 Nonmetallic Minerals
19 Ordnance or Accessories
40 Waste or Scrap Materials
41 Miscellaneous Freight Shipments
42 Shipping Containers
43 Mail or Contract Traffic

44 Freight Forwarder Traffic
45 Shipper Association Traffic
46 Miscellaneous Mixed Shipments
47 Small Packaged Freight Shipments

Another omission is the absence of pipeline data. The significance of this is somewhat different, in that pipeline is a very significant mode for some of few commodities moving by it. Excluding pipeline means that our coverage of those commodities, specifically natural gas, is severely restricted.

The above omissions are primarily in commodities for which the missing modes account for small shares of total tons and smaller shares of ton-miles. While we believe the omissions are of minimal importance to the broad picture of freight flows, there will inevitably be potential applications in which they are burdensome. For example, some of the above two-digit STCCs, particularly STCCs 08 and 09, are obviously important to Maine. According to the Census of Transportation, 1992 Truck Use Survey, "logs and other forest products" and "farm products" were both among the top ten Maine commodities shipped by truck, accounting for 6% and 10% of total truck movements, respectively.

Therefore, the reader should note that the following tonnage estimates of commodity movements by truck may be modestly understated by the omissions of the above commodity groups. However, these omissions will not result in similarly understated estimates of truck trips and resulting truck traffic forecasts for the east-west highway. The truck traffic estimates / projections developed by MDOT capture all truck movements, including those which may be omitted in this analysis.

A second class of limitation arises out of our treatment of modal split. Modal choice is not treated as sensitive to price or service characteristics of individual modes. Modal shares evolve over time in response to relative growth or contractions of commodities for which individual modes have advantages. For example, if the commodities in which rail intermodal has a large share grow more quickly than do other commodities, the total rail intermodal share will grow in the forecasts.

Finally, the reader may note that there are differences between the 1997 freight flows tonnages reported in the Phase I Technical Report, which were developed in December of last year, and the 1997 values shown here. The values contained in this report are more accurate and replace those reported previously. Reasons for the discrepancies are explained below.

For flows between Maine and other parts of the United States these differences are modest. They result from a methodological refinement to the way the numbers were constructed. In both cases, the 1997 values were constructed as forecasts from 1995 measures of county to county freight flows. The 1997 values as initially delivered were constructed using national level data on growth rates by industry. The values reported here utilize county level growth rate data. The latter properly captures geographic variation in industry performance.

The 1997 flows to and from Atlantic Canada as reported here are markedly different from those reported previously. This is also due to a major refinement in the methodology. The earlier data were developed directly from truck and rail shipment surveys collected by Stats Canada. The current data use a methodology akin to that

underlying the reported US to US flows. The approach incorporates 1995 data on flows between US counties to Canadian provinces, county and provincial growth rates by industry, and 1997 totals of transborder goods movement by industry. The current numbers, while much higher than were the earlier ones, are consistent with measures of total north and south transborder tonnage.

With these limitations in mind, commodity forecast results are reported below.

Overview

Maine

In 1997, 14.3 million tons of cargo left the state of Maine for other US states by rail, truck, or water. Tonnage leaving the state travels primarily by truck, which accounted for 79% of outbound tonnage in 1997. Rail accounted for 17% while shipments by water accounted for only 4% of total outbound tonnage in 1997. Total tonnage is forecast to grow at a 2.5% average annual rate through 2015, with modal shares unchanged.

Table 2-1: Maine Outbound-Inbound Freight Forecast Summary (Tonnage)

						Change: 1997-2015		
						Total	Annual	Ann %
	1997	2000	2005	2010	2015	1997-15	Average	Change
Maine to US Outbound								
Water	599,087	645,686	700,495	747,488	844,898	245,811	13,656	1.8%
Truck	11,198,653	12,016,381	13,695,231	15,575,400	17,658,906	6,460,253	358,903	2.6%
Rail	2,465,660	2,605,012	3,000,745	3,385,003	3,855,683	1,390,023	77,224	2.6%
Subtotal:	14,263,400	15,267,079	17,396,471	19,707,890	22,359,488	8,096,088	449,783	2.6%
US to Maine Inbound								
Water	2,923,850	3,095,919	3,263,054	3,401,352	3,418,044	494,194	27,455	0.7%
Truck	3,986,061	4,311,394	4,873,988	5,567,892	6,162,421	2,176,360	120,909	2.4%
Rail	1,713,564	1,805,727	2,070,075	2,306,457	2,756,444	1,042,880	57,938	2.9%
Subtotal:	8,623,474	9,213,040	10,207,117	11,275,701	12,336,910	3,713,436	206,302	2.0%
Total Maine/US Bi-directional	**22,886,874**	**24,480,119**	**27,603,588**	**30,983,591**	**34,696,398**	**11,809,524**	**656,085**	**2.4%**
Maine to Canada Outbound								
Water	1,560	1,727	2,593	4,058	6,356	4,796	266	9.1%
Truck	3,006,759	3,465,107	4,260,238	5,108,282	5,971,843	2,965,084	164,727	3.7%
Rail	26,607	29,813	42,413	62,455	92,408	65,801	3,656	7.8%
Subtotal:	3,034,925	3,496,646	4,305,244	5,174,795	6,070,607	3,035,682	168,649	3.7%
Canada to Maine Inbound								
Water	1,968,897	2,192,481	2,827,546	3,673,708	4,688,342	2,719,445	151,080	5.2%
Truck	1,803,684	1,864,074	2,206,356	2,697,932	3,272,397	1,468,713	81,595	3.8%
Rail	1,226,771	1,248,091	1,408,761	1,645,163	1,911,775	685,005	38,056	2.9%
Subtotal:	4,999,351	5,304,646	6,442,663	8,016,803	9,872,514	4,873,163	270,731	4.2%
Total Maine/Canada Bi-directional	**8,034,277**	**8,801,292**	**10,747,907**	**13,191,598**	**15,943,121**	**7,908,844**	**439,380**	**4.0%**

Inbound tonnage to Maine from the rest of the United States totaled 8.6 million tons in 1997. Trucks are the most popular mode of transportation to move cargo into the state, with 46% of total tonnage entering the state by truck. Much more tonnage enters the state via water transport than leaves the state by the same mode; 34% of 1997 tonnage entered Maine by boat. Much of the water tonnage is in petroleum products from the Mid-Atlantic States. Rail accounted for 20% of tonnage entering the state in 1997. Over the forecast horizon, total inbound is expected to grow at an average annual 2.0%, with trucks steadily gaining share. Rail share will hold steady though 2010 and then rise somewhat.

Also in 1997, just over 3.0 million tons of cargo left the state of Maine for Canada, shipped almost entirely by truck. Total outbound tonnage to Canada is forecast to grow at a 3.7% average annual rate, reaching nearly 6.1 million tons by 2015. Water and rail borne freight are projected to grow more rapidly than truck freight over the forecast period, but each from a very small base.

Inbound tonnage to Maine from all of Canada totaled just under 5.0 million tons in 1997, with a fairly even distribution among modes. Total inbound shipments from Canada are expected to grow at an even faster 4.2% annual growth rate over the forecast period, reaching nearly 9.9 million tons by 2015.

Table 2-2: Provincial Distribution of Year 2015 Maine-Canada Freight Movements

	2015 Tonnage				% Distribution
Province of Origin/Destination	Rail	Truck	Water	TOTAL	All Modes
Maine to Canada Outbound					
New Brunswick	11,250	1,183,587	6,207	1,201,044	19.8%
Other Atlantic Provinces	159	6,757	0	6,916	0.1%
Quebec	51,788	4,643,963	10	4,695,761	77.4%
Ontario	27,249	128,754	118	156,121	2.6%
Other Western Provinces	1,963	8,781	21	10,765	0.2%
Totals:	92,409	5,971,842	6,356	6,070,607	100.0%
Canada to Maine Inbound					
New Brunswick	247,443	1,939,491	4,180,467	6,367,401	64.5%
Other Atlantic Provinces	23,678	167,504	314,026	505,208	5.1%
Quebec	969,748	897,051	193,847	2,060,646	20.9%
Ontario	410,887	207,245	3	618,135	6.3%
Other Western Provinces	260,018	61,106	0	321,124	3.3%
Totals:	1,911,775	3,272,397	4,688,342	9,872,514	100.0%
Bi-Directional					
New Brunswick	258,693	3,123,078	4,186,674	7,568,445	47.5%
Other Atlantic Provinces	23,837	174,261	314,026	512,124	3.2%
Quebec	1,021,536	5,541,014	193,857	6,756,407	42.4%
Ontario	438,136	335,999	121	774,256	4.9%
Other Western Provinces	261,981	69,887	21	331,889	2.1%
Totals:	**2,004,184**	**9,244,239**	**4,694,698**	**15,943,121**	**100.0%**

Table 2-2 provides an indication of the direction of forecast Maine-Canada commodity flows by the end of the forecast period. The vast majority (77%) of all outbound Maine freight to Canada is expected to go to Quebec, and more than 80% of all outbound tonnage is projected to move in a westerly direction. Movements of inbound freight are in the opposite direction, with 64% of all inbound tonnage coming from New Brunswick and nearly 70% of all inbound tonnage arriving from the Atlantic Provinces.

Atlantic Canada

In 1997, 25.6 million tons of freight left Atlantic Canada, 81% by water, 13% by truck and 6% by rail. Inbound freight from the US is of considerably lower volume at 2.7 million tons in 1997. Rail and truck shares are greater for outbound traffic, but the outbound tonnage for each mode falls well short of the inbound tonnage.

Considerable growth is anticipated over the forecast period, with the total to the US increasing at an average annual rate of 6.2%, and the total from the US rising at 4.9%. The water share to the US will rise from its current high level, while both truck and rail shares will decline. From the US, the truck share will gain at the expenses of both water

and rail shares.

Table2-3: Atlantic Canada Outbound-Inbound Freight Forecast Summary (Tonnage)

						Change: 1997-2015		
						Total	Annual	Ann %
	1997	2000	2005	2010	2015	1997-15	Average	Change
Canada to US								
Water	20,695,188	24,834,662	35,110,549	49,102,066	66,198,265	45,503,077	2,527,949	6.8%
Truck	3,410,360	3,543,461	4,283,225	5,362,599	6,646,291	3,235,931	179,774	4.3%
Rail	1,520,024	1,510,729	1,683,920	1,972,441	2,296,367	776,343	43,130	2.8%
Total	25,625,573	29,888,852	41,077,694	56,437,106	75,140,923	**49,515,350**	**2,750,853**	**6.3%**
US to Atlantic Canada								
Water	1,065,217	1,235,323	1,546,167	1,942,573	2,390,773	1,325,556	73,642	4.5%
Truck	1,170,026	1,339,433	1,747,286	2,295,039	2,999,612	1,829,586	101,644	5.5%
Rail	424,698	494,327	612,038	756,106	911,596	486,898	27,050	4.2%
Total	2,659,941	3,069,083	3,905,492	4,993,718	6,301,981	**3,642,040**	**202,336**	**4.9%**
Potential additional truck trips @ 40 tons per load								
Outbound	38,001	37,768	42,098	49,311	57,409	19,409	1,078	2.8%
Inbound	640,639	747,221	1,026,942	1,410,928	1,878,523	1,237,884	68,771	6.3%
Total	678,640	784,990	1,069,040	1,460,239	1,935,932	1,257,292	69,850	6.2%

Outbound - From Maine

By Commodity - U.S. Destinations

The top three commodities (by tonnage) leaving Maine are paper, converted paper or paperboard products, and field crops. Together, these three commodities accounted for over half of all tonnage leaving the state, with paper alone accounting for 35% of outbound tonnage. Both truck and rail are important to the shipment of paper, with truck holding a 65% share. The truck share is nearly 100% for the other two of the top three exports.

After the top three commodities, nine other commodities had over 200,000 tons exported in 1997, and another 12 had in excess of 100,000 tons. The top 12 commodities account for 81% of outbound tonnage, and the second 12 for an additional 13%.

Total shipments are projected to grow at an average annual rate of 2.5% between 1997 and 2015. Paper shipments will grow at a slightly greater 2.6% and Converted Paper or Paperboard Products will grow at 2.9%. Shipments of household appliances are expected to grow at a very strong 8.7%.

Table2-4: Forecast of Outbound Maine Freight Tonnage by Major Commodity Groups: U.S. Destinations

Major Commodities from Maine to Other US States	1997 Total Tons	1997 % of Total	2010 Total Tons	2010 % of Total	2015 Total Tons	2015 % of Total
Paper	4,995,985	35.0%	6,927,065	35.1%	7,914,739	35.4%
Converted Paper Or Ppbd Products	1,549,657	10.9%	2,219,457	11.3%	2,612,289	11.7%
Field Crops	1,059,434	7.4%	1,471,390	7.5%	1,626,578	7.3%
Canned Or Preserved Food	983,790	6.9%	1,169,554	5.9%	1,220,127	5.5%
Secondary Traffic	854,699	6.0%	1,013,911	5.1%	1,052,048	4.7%
Grain Mill Products	512,819	3.6%	617,183	3.1%	642,554	2.9%
Waste Or Scrap	428,228	3.0%	488,151	2.5%	527,187	2.4%
Household Appliances	311,519	2.2%	998,995	5.1%	1,398,007	6.3%
Misc Freight Shipments	243,182	1.7%	335,987	1.7%	394,540	1.8%
Concrete, Gypsum, Or Plaster	241,910	1.7%	282,065	1.4%	347,631	1.6%
Pulp Or Pulp Mill Products	228,564	1.6%	297,913	1.5%	371,448	1.7%
Industrial Chemicals	202,474	1.4%	258,865	1.3%	286,580	1.3%
All Other Commodities	2,651,139	18.6%	3,627,355	18.4%	3,965,760	17.7%
Total Leaving Maine to US Destinations:	**14,263,400**		**19,707,891**		**22,359,488**	
Growth 1997-2015:	Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Paper	2,918,754		162,153		2.6%	
Converted Paper Or Ppbd Products	1,062,632		59,035		2.9%	
Field Crops	567,144		31,508		2.4%	
Canned Or Preserved Food	236,337		13,130		1.2%	
Secondary Traffic	197,349		10,964		1.2%	
Grain Mill Products	129,735		7,208		1.3%	
Waste Or Scrap	98,959		5,498		1.2%	
Household Appliances	1,086,488		60,360		8.7%	
Misc Freight Shipments	151,358		8,409		2.7%	
Concrete, Gypsum, Or Plaster	105,721		5,873		2.0%	
Pulp Or Pulp Mill Products	142,884		7,938		2.7%	
Industrial Chemicals	84,106		4,673		1.9%	
All Other Commodities	1,314,621		73,035		2.3%	
Total Leaving Maine to US Destinations:	**8,096,088**		**449,783**		**2.5%**	

By Mode - U.S. Destinations

The vast majority of cargo leaving Maine leaves by truck. In 1997 truck cargo account for 79% of outbound cargo, with rail and water accounting for 17% and 4% respectively. These shares are projected to remain stable through 2015. The top three exports overall (paper, paper/paperboard products, and field crops) are the top commodities moved by truck. The top exports by rail in 1997 were paper (1.7 million tons), pulp or pulp mill products (228,000 tons), and industrial chemicals (130,000 tons). Waste/scrap is the top commodity moved by water, with 428,000 tons exported in 1997 in total, nearly 82% of that tonnage was exported via water routes.

Table 2-5: Forecast of Outbound Maine Freight Tonnage by Mode: U.S. Destinations

Modes from Maine to Other US States	1997 Total Tons	1997 % of Total	2010 Total Tons	2010 % of Total	2015 Total Tons	2015 % of Total
Rail	2,465,660	17.0%	3,385,003	17.0%	3,855,683	17.0%
Truck	11,198,653	79.0%	15,575,400	79.0%	17,658,906	79.0%
Water	599,087	4.0%	747,488	4.0%	844,898	4.0%
Total:	**14,263,400**		**19,707,891**		**22,359,488**	
Growth 1997-2015:	Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Rail	1,390,023		77,224		2.5%	
Truck	6,460,253		358,903		2.6%	
Water	245,811		13,656		1.9%	
Total:	**8,096,088**		**449,783**		**2.5%**	

By U.S. Destinations and Largest Commodities [5]

The Southeast US is the largest destination for cargo leaving the state of Maine. With 2.5 million tons of cargo leaving the state for Southeast US destinations, the region accounted for 18% of total tonnage exports in 1997. The Chicago and New York City / New Jersey areas are the second and third largest destinations for goods leaving the state with 1.7 million tons moving from Maine to Chicago and 1.4 million to the New York / New Jersey area. Boston, Washington D.C., and the Southwest, follow the top 3 destinations closely. The strongest growth is projected for shipments to the Southeast, with an average annual gain of 4.2% through 2015. Shipments to the Washington D.C. area and to the Southwest will increase in share, while those to Chicago, Boston, Philadelphia, and Kansas will decline in share.

[5] Regional definitions used in this section are the same as those developed for the presentation of 1997 commodity flows. Maps identifying regions of origin and destination are presented in Chapter 4 of the Phase I Technical Report: Baseline Conditions.

Table 2-6: Forecast of Outbound Maine Freight Tonnage by Major U.S. Destinations

Major US Destinations for Truck, Rail and Water Traffic from Maine	1997 Total Tons	1997 % of Total	2010 Total Tons	2010 % of Total	2015 Total Tons	2015 % of Total
Southeast US	2,502,176	17.5%	4,350,105	22.1%	5,256,576	23.5%
Chicago	1,684,250	11.8%	2,154,317	10.9%	2,354,132	10.5%
New York / New Jersey	1,438,301	10.1%	1,789,631	9.1%	1,921,042	8.6%
Boston	1,140,641	8.0%	1,375,530	7.0%	1,456,530	6.5%
Washington DC	987,913	6.9%	1,454,781	7.4%	1,672,183	7.5%
Southwest US	963,123	6.8%	1,453,990	7.4%	1,731,546	7.7%
Philadelphia	811,448	5.7%	990,893	5.0%	1,106,379	4.9%
Kansas	572,217	4.0%	707,642	3.6%	771,917	3.5%
Louisville	371,508	2.6%	521,304	2.6%	611,338	2.7%
All Other US Destinations	3,791,823	26.6%	4,909,698	24.9%	5,477,845	24.5%
Total leaving Maine to all US Destinations:	**14,263,400**		**19,707,891**		**22,359,488**	
Growth 1997-2015:	Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Southeast US	2,754,400		153,022		4.2%	
Chicago	669,882		37,216		1.9%	
New York / New Jersey	482,741		26,819		1.6%	
Boston	315,889		17,549		1.4%	
Washington DC	684,270		38,015		3.0%	
Southwest US	768,423		42,690		3.3%	
Philadelphia	294,931		16,385		1.7%	
Kansas	199,700		11,094		1.7%	
Louisville	239,830		13,324		2.8%	
All Other US Destinations	1,686,022		93,668		2.1%	
Total leaving Maine to all US Destinations:	**8,096,088**		**449,783**		**2.5%**	

When examined by commodities to individual hubs, the commodity concentration is quite evident. The top four, and six of the top seven are shipments of paper to different hubs. The greatest geographic concentration is to the Southeast, which appears three times in the top ten entries. The Chicago area appears twice. Through 2015 shipments of paper to each of its top four markets are projected to grow faster than will total shipments of all goods. Particularly strong growth is forecast for paper shipments to the Southwest. The strong growth in household appliance shipments noted above will be concentrated in shipments to the Southeast.

Table 2-7: Detailed Forecast of Outbound Maine Freight Tonnage by Major U.S. Destinations and Largest Commodity Groups

		1997		2010		2015	
Major Commodities from Maine to US Hubs		Total Tons	% of Total	Total Tons	% of Total	Total Tons	% of Total
Southeast US	Paper	923,903	6.5%	1,335,465	6.8%	1,533,710	6.9%
Chicago	Paper	703,868	4.9%	984,839	5.0%	1,120,709	5.0%
Washington DC	Paper	564,397	4.0%	829,297	4.2%	969,983	4.3%
Southwest US	Paper	560,804	3.9%	839,263	4.3%	1,001,455	4.5%
Chicago	Canned Or Preserved Food	549,384	3.9%	637,578	3.2%	664,094	3.0%
New York / New Jersey	Paper	390,826	2.7%	520,554	2.6%	543,254	2.4%
Kansas	Paper	346,716	2.4%	466,351	2.4%	513,888	2.3%
Southeast US	Field Crops	311,576	2.2%	469,044	2.4%	515,760	2.3%
Southeast US	Household Appliances	284,173	2.0%	914,542	4.6%	1,285,011	5.7%
Philadelphia	Waste Or Scrap	270,333	1.9%	294,497	1.5%	319,919	1.4%
Northwest US	Paper	222,628	1.6%	330,924	1.7%	405,840	1.8%
Southeast US	Converted Paper Or Ppbd Products	215,371	1.5%	336,125	1.7%	409,103	1.8%
Louisville	Converted Paper Or Ppbd Products	211,326	1.5%	305,610	1.6%	371,681	1.7%
New York / New Jersey	Grain Mill Products	198,892	1.4%	224,859	1.1%	227,963	1.0%
Philadelphia	Misc Freight Shipments	186,245	1.3%	252,538	1.3%	292,823	1.3%
Chicago	Converted Paper Or Ppbd Products	186,153	1.3%	241,423	1.2%	267,776	1.2%
Boston	Field Crops	171,184	1.2%	237,804	1.2%	240,102	1.1%
New York / New Jersey	Secondary Traffic	170,505	1.2%	192,012	1.0%	191,532	0.9%
Philadelphia	Paper	167,337	1.2%	210,135	1.1%	225,038	1.0%
Southwest US	Converted Paper Or Ppbd Products	165,905	1.2%	256,764	1.3%	314,357	1.4%
All Other Destinations	All Other Commodities	7,461,874	52.3%	9,828,267	49.9%	10,945,490	49.0%
Total leaving Maine to US Destinations:		**14,263,400**		**19,707,891**		**22,359,488**	

		Total Change	Annual Average	Annual Growth
Growth 1997-2015:		1997-2015	Increase: 97-15	Rate: 97-15
Southeast US	Paper	609,807	33,878	2.9%
Chicago	Paper	416,841	23,158	2.6%
Washington DC	Paper	405,586	22,533	3.1%
Southwest US	Paper	440,651	24,481	3.3%
Chicago	Canned Or Preserved Food	114,710	6,373	1.1%
New York / New Jersey	Paper	152,428	8,468	1.8%
Kansas	Paper	167,172	9,287	2.2%
Southeast US	Field Crops	204,184	11,344	2.8%
Southeast US	Household Appliances	1,000,838	55,602	8.7%
Philadelphia	Waste Or Scrap	49,586	2,755	0.9%
Northwest US	Paper	183,212	10,178	3.4%
Southeast US	Converted Paper Or Ppbd Products	193,732	10,763	3.6%
Louisville	Converted Paper Or Ppbd Products	160,355	8,909	3.2%
New York / New Jersey	Grain Mill Products	29,071	1,615	0.8%
Philadelphia	Misc Freight Shipments	106,578	5,921	2.5%
Chicago	Converted Paper Or Ppbd Products	81,623	4,535	2.0%
Boston	Field Crops	68,918	3,829	1.9%
New York / New Jersey	Secondary Traffic	21,027	1,168	0.6%
Philadelphia	Paper	57,701	3,206	1.7%
Southwest US	Converted Paper Or Ppbd Products	148,452	8,247	3.6%
All Other Destinations	All Other Commodities	3,483,616	193,534	2.2%
Total leaving Maine to US Destinations:		**8,096,088**	**449,783**	**2.5%**

In 1997, twelve commodity groups shipped more than 100,000 tons to any single destination, and ten regions received shipments of a single commodity of more than 100,000 tons in 1997. The single largest commodity-destination pair was shipments of paper to the Southeast region, with 923,903 tons shipped in 1997, 52% by truck and 48% by rail. In 2015 there will again be twelve commodity groups shipping over 100,000 tons to individual destinations, but there will be sixteen regions involved.

Inbound - To Maine

By Commodity - U.S. Points of Origin

Over 8.6 million tons of commodities were shipped to Maine from other States in 1997. Products of petroleum refining account for 2.5 million tons or 29% of the total, and almost all of this arrives by water. After petroleum products, and disregarding secondary traffic, the top three imports in terms of tonnage were abrasives and asbestos products, bituminous coal or lignite, and concrete, gypsum, or plaster. These three commodities account for 17% of total tonnage imports into the state indicating that imports are much more evenly distributed among the commodity categories than exports.

Table2-8: Forecast of Inbound Maine Freight Tonnage by Major Commodity Groups: U.S. Points of Origin

	1997		2010		2015	
Major Commodities to Maine from Other US States	Total Tons	% of Total	Total Tons	% of Total	Total Tons	% of Total
Prod Of Petroleum Refining	2,479,550	28.8%	2,845,403	25.2%	2,838,115	23.0%
Abrasives, Asbestos Products, Etc.	944,616	11.0%	1,221,378	10.8%	1,626,774	13.2%
Secondary Traffic	717,585	8.3%	891,091	7.9%	988,780	8.0%
Bituminous Coal Or Lignite	291,641	3.4%	337,413	3.0%	361,857	2.9%
Concrete, Gypsum, Or Plaster	282,903	3.3%	320,706	2.8%	355,808	2.9%
Paving Or Roofing Materials	261,669	3.0%	280,978	2.5%	299,578	2.4%
Industrial Chemicals	219,909	2.6%	570,379	5.1%	645,938	5.2%
Primary Forest Materials	206,739	2.4%	237,894	2.1%	249,946	2.0%
Grain Mill Products	193,821	2.2%	239,491	2.1%	258,194	2.1%
Plastic Mater Or Synth Fibres	183,527	2.1%	332,887	3.0%	368,739	3.0%
Misc Coal Or Petroleum Products	163,538	1.9%	165,605	1.5%	194,829	1.6%
Field Crops	162,405	1.9%	186,340	1.7%	169,916	1.4%
All Other Commodities	2,515,571	29.2%	3,646,136	32.3%	3,978,436	32.2%
Total entering Maine from US Origins:	**8,623,474**		**11,275,701**		**12,336,910**	
Growth 1997-2015:	Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Prod Of Petroleum Refining	358,565		19,920		0.8%	
Abrasives, Asbestos Products, Etc.	682,158		37,898		3.1%	
Secondary Traffic	271,195		15,066		1.8%	
Bituminous Coal Or Lignite	70,216		3,901		1.2%	
Concrete, Gypsum, Or Plaster	72,905		4,050		1.3%	
Paving Or Roofing Materials	37,909		2,106		0.8%	
Industrial Chemicals	426,029		23,668		6.2%	
Primary Forest Materials	43,207		2,400		1.1%	
Grain Mill Products	64,373		3,576		1.6%	
Plastic Mater Or Synth Fibres	185,212		10,290		4.0%	
Misc Coal Or Petroleum Products	31,291		1,738		1.0%	
Field Crops	7,511		417		0.3%	
All Other Commodities	1,462,865		81,270		2.6%	
Total entering Maine from US Origins:	**3,713,436**		**206,302**		**2.0%**	

Between 1997 and 2015, total shipments are forecast to grow at an average annual 2.0%. Among the top twelve commodities in the table below, industrial chemicals and plastic material or synthetic fibers will grow most quickly, at 6.2% and 4.0%, respectively.

Products of petroleum refining and paving or roofing materials will each grow at just 0.8%. Imports of field crops will grow at only 0.3%, declining to 1% of total imports.

By Mode - U.S. Points of Origin

While on the outbound side, truck shipments clearly dominated, because of significant water shipments of petroleum products, inbound cargo is almost as likely to arrive by boat as it is by truck with 34% and 46% of tonnage imports respectively.

Table 2-9: Forecast of Inbound Maine Freight Tonnage by Mode: U.S. Points of Origin

	1997		2010		2015	
Modes to Maine from Other US States	Total Tons	% of Total	Total Tons	% of Total	Total Tons	% of Total
Rail	1,713,564	20.0%	2,306,457	20.0%	2,756,444	22.0%
Truck	3,986,061	46.0%	5,567,892	49.0%	6,162,422	50.0%
Water	2,923,850	34.0%	3,401,352	30.0%	3,418,044	28.0%
Total:	**8,623,474**		**11,275,701**		**12,336,910**	
Growth 1997-2015:	Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Rail	1,042,880		57,938		2.7%	
Truck	2,176,361		120,909		2.4%	
Water	494,194		27,455		0.9%	
Total:	**3,713,436**		**206,302**		**2.0%**	

Top commodities moved by rail include motor vehicles or equipment, miscellaneous food preparations, and industrial chemicals. By water, as mentioned, the top commodity is petroleum products which account for 84% of total imports by water. Petroleum products are followed by bituminous coal or lignite, with 272,869 tons imported via water. The main commodities shipped by truck include concrete, gypsum, or plaster (282,903 tons), primary forest materials (206,739 tons), and industrial chemicals (184,801 tons). Both rail and truck shares are projected to grow between 1997 and 2015, with a total of six share points to be taken from water. This is substantially the consequence of modest growth in imports of the petroleum product where waterborne commerce is concentrated.

By Origin and Commodity

The top three origins of Maine's imports are the New York / New Jersey area, Southeast USA, and Boston. By 2010 these three origins are projected to account for 53% of tonnage imports, growing to 54% by 2015. This picture is dominated by petroleum coming out of New York / New Jersey, and if this is ignored, then the Southwest is added to the top origins list.

Table 2-10: Detailed Forecast of Inbound Maine Freight Tonnage by Major U.S. Points of Origin and Largest Commodity Groups

Major Commodities to Maine from US Hubs		1997 Total Tons	1997 % of Total	2010 Total Tons	2010 % of Total	2015 Total Tons	2015 % of Total
New York / New Jersey	Prod Of Petroleum Refining	1,567,539	11.0%	1,868,894	9.5%	1,775,397	7.9%
Southeast US	Abrasives,Asbestos Products, Etc.	852,484	6.0%	1,081,543	5.5%	1,470,521	6.6%
Philadelphia	Prod Of Petroleum Refining	302,608	2.1%	279,123	1.4%	283,886	1.3%
Washington DC	Bituminous Coal Or Lignite	272,869	1.9%	321,102	1.6%	339,429	1.5%
Boston	Prod Of Petroleum Refining	266,628	1.9%	345,341	1.8%	396,203	1.8%
Southwest US	Prod Of Petroleum Refining	228,362	1.6%	226,052	1.1%	248,799	1.1%
Southeast New Hampshire	Secondary Traffic	159,997	1.1%	205,935	1.0%	232,868	1.0%
Southwest New Hampshire	Secondary Traffic	126,769	0.9%	161,903	0.8%	179,912	0.8%
Boston	Misc Coal Or Petroleum Products	122,162	0.9%	116,069	0.6%	148,668	0.7%
Detroit	Field Crops	112,141	0.8%	123,673	0.6%	107,865	0.5%
Southeast New Hampshire	Concrete, Gypsum, Or Plaster	108,937	0.8%	123,515	0.6%	138,776	0.6%
Boston	Secondary Traffic	107,935	0.8%	131,803	0.7%	145,872	0.7%
New York / New Jersey	Secondary Traffic	95,955	0.7%	115,380	0.6%	124,618	0.6%
Southeast US	Industrial Chemicals	85,852	0.6%	168,496	0.9%	189,547	0.8%
Southwest US	Fresh Vegetables	79,989	0.6%	108,772	0.6%	113,411	0.5%
New York / New Jersey	Paving Or Roofing Materials	72,970	0.5%	84,321	0.4%	65,992	0.3%
Southern Vermont	Abrasives, Asbestos Products, Etc.	72,408	0.5%	111,899	0.6%	127,172	0.6%
Southwest New Hampshire	Paving Or Roofing Materials	66,370	0.5%	68,628	0.3%	80,163	0.4%
Southwest New Hampshire	Concrete, Gypsum, Or Plaster	65,460	0.5%	68,489	0.3%	77,359	0.3%
Southeast US	Fiber, Paper Or Pulpboard	64,944	0.5%	67,794	0.3%	77,540	0.3%
All Other Regions of Origin	All Other Commodities	9,431,021	66.1%	13,929,159	70.7%	16,035,490	71.7%
Total entering Maine from US Origins :		**14,263,400**		**19,707,891**		**22,359,488**	

Growth 1997-2015:		Total Change 1997-2015	Annual Average Increase: 97-15	Annual Growth Rate: 97-15
New York / New Jersey	Prod Of Petroleum Refining	207,858	11,548	0.7%
Southeast US	Abrasives,Asbestos Products, Etc.	618,037	34,335	3.1%
Philadelphia	Prod Of Petroleum Refining	(18,722)	(1,040)	-0.4%
Washington DC	Bituminous Coal Or Lignite	66,560	3,698	1.2%
Boston	Prod Of Petroleum Refining	129,575	7,199	2.2%
Southwest US	Prod Of Petroleum Refining	20,437	1,135	0.5%
Southeast New Hampshire	Secondary Traffic	72,871	4,048	2.1%
Southwest New Hampshire	Secondary Traffic	53,143	2,952	2.0%
Boston	Misc Coal Or Petroleum Products	26,506	1,473	1.1%
Detroit	Field Crops	(4,276)	(238)	-0.2%
Southeast New Hampshire	Concrete, Gypsum, Or Plaster	29,839	1,658	1.4%
Boston	Secondary Traffic	37,937	2,108	1.7%
New York / New Jersey	Secondary Traffic	28,663	1,592	1.5%
Southeast US	Industrial Chemicals	103,695	5,761	4.5%
Southwest US	Fresh Vegetables	33,422	1,857	2.0%
New York / New Jersey	Paving Or Roofing Materials	(6,978)	(388)	-0.6%
Southern Vermont	Abrasives, Asbestos Products, Etc.	54,764	3,042	3.2%
Southwest New Hampshire	Paving Or Roofing Materials	13,793	766	1.1%
Southwest New Hampshire	Concrete, Gypsum, Or Plaster	11,899	661	0.9%
Southeast US	Fiber, Paper Or Pulpboard	12,596	700	1.0%
All Other Regions of Origin	All Other Commodities	6,604,469	366,915	3.0%
Total entering Maine from US Origins :		**8,096,088**	**449,783**	**2.5%**

Because Maine imports a wide variety of goods from a wide variety of sources, there are only twelve origin-commodity pairings with 1997 tonnage accounting for 1% or more of the total. And, among the twelve pairings, products of petroleum refining and secondary traffic each hold four positions. Between 1997 and 2015 particularly strong growth is expected in abrasives and asbestos products from the Southeast (3.1% average annual growth) and from southern Vermont (3.2%), in industrial chemicals from the Southeast (4.5%) and from New York / New Jersey (3.4%), and in plastic materials and synthetic fibers from Boston (4.2%) and from the Southeast (4.6%).

Products of petroleum refining grow slowly from nearly all sources, with those from Philadelphia actually declining at an average 0.4% per year. Also declining will be field crops from the Detroit area (-0.2%) and paving or roofing materials from New York / New Jersey –0.6%).

Outbound - From Atlantic Canada

By Commodity

In 1997, 25.6 million tons of freight left Atlantic Canada for the US. Of this, 4.9 million tons moved by either rail or truck. Pulp and pulp mill products accounted for 1.2 million of the truck and rail tons, with paper another 0.8 million. Sawmill or planing mill products were just over 0.5 million tons. The next three for truck and rail shipments were miscellaeous nonmetallic minerals; concrete, gypsum or plaster; and tires or inner tubes. The top six truck and rail commodity groups mentioned above accounted for 60% of outbound freight.

By Mode

In 1997, 13.3% of outbound Atlantic Canada tonnage to the US was shipped by truck. Top trucked commodities include paper, pulp and pulp mill products, sawmill and planing mill products, nonmetallic minerals and field crops. Rail freight accounts for only 5.9% tonnage that left Atlantic Canada for the US in 1997. The top rail commodities include paper, pulp and pulp mill products, and sawmill and planing mill products. The water mode dominated, with an 80.8% share. Of the water total, approximately one third was miscellaneous nonmetallic minerals, one quarter was iron ore, and another quarter was products of petroleum refining.

Table2-11: Forecast of Atlantic Canada Freight Tonnage by Mode: U.S. Destinations

	1997		2010		2015	
Modes from Atlantic Canada to the US	Total Tons	% of Total	Total Tons	% of Total	Total Tons	% of Total
Rail	1,520,025	5.9%	1,972,442	3.5%	2,296,368	3.0%
Truck	3,410,358	13.3%	5,362,586	9.5%	7,072,938	9.4%
Water	20,695,187	80.8%	49,102,065	87.0%	66,198,265	87.6%
Total:	**25,625,569**		**56,437,092**		**75,567,571**	
Growth 1997-2015:	Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Rail	776,343		43,130		2.3%	
Truck	3,662,580		203,477		4.1%	
Water	45,503,078		2,527,949		6.7%	
Total:	**49,942,002**		**2,774,556**		**6.2%**	

By Destination

Quebec, Ontario, and Maine are the three largest destinations, by a large margin, for freight leaving Atlantic Canada by either truck or rail, accounting for 57% of tonnage leaving Atlantic Canada.. The remaining six of the top nine destinations are all within the US.

The table below includes only shipments to US regions. Water's large overall share translates into the top entries being those for which water shipments are substantial.

The largest entry for which truck would be relevant is shipments of pulp and pulp mill products, with a total of 278,000 tons in 1997, of which 207,000 moved by truck, with the rest by rail. Similarly, the largest entry when ranked by rail tonnage would be shipments of pulp and pulp mill products to Green Bay, with 115,000 out of 119,000 tons moving by rail.

Table2-12: Forecasted Growth in Truck and Rail Shipments from Atlantic Canada to Major North American Destinations

	1997		2010		2015	
Major Destinations for Truck and Rail Traffic from Atlantic Canada	Total Tons	% of Total	Total Tons	% of Total	Total Tons	% of Total
Ontario	2,002,425	21.7%	2,770,349	21.2%	3,011,902	19.9%
Quebec	2,108,653	22.9%	2,753,613	21.1%	2,902,341	19.2%
Maine	1,443,709	15.7%	2,006,235	15.3%	2,378,117	15.7%
NY/NJ	615,321	6.7%	1,130,740	8.6%	1,480,385	9.8%
Southeast US	457,686	5.0%	741,764	5.7%	930,234	6.2%
Boston	478,210	5.2%	675,171	5.2%	803,949	5.3%
Philadelphia	219,968	2.4%	284,237	2.2%	326,243	2.2%
Erie PA	137,391	1.5%	266,163	2.0%	353,653	2.3%
Albany NY	179,596	1.9%	253,003	1.9%	301,974	2.0%
All Other Destinations	1,567,830	17.0%	2,199,866	16.8%	2,612,566	17.3%
Total leaving Atlantic Canada to all US & Canadian Destinations	**9,210,789**		**13,081,141**	**100.0%**	**15,101,364**	**100.0%**
Growth 1997-2015:	Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Ontario	1,009,477		56,082		2.3%	
Quebec	793,688		44,094		1.8%	
Maine	934,408		51,912		2.8%	
NY/NJ	865,064		48,059		5.0%	
Southeast US	472,548		26,253		4.0%	
Boston	325,739		18,097		2.9%	
Philadelphia	106,275		5,904		2.2%	
Erie PA	216,262		12,015		5.4%	
Albany NY	122,378		6,799		2.9%	
All Other Destinations	1,044,736		58,041		2.9%	
Total leaving Atlantic Canada to all US & Canadian Destinations	**5,890,575**		**327,254**		**2.8%**	

With few exceptions, for both truck and rail it is paper and products of pulp and paper mills that are important. Among the exceptions are:

- Truck shipments of miscellaneous nonmetallic minerals to New York/New Jersey (150,000 tons in 1997 growing to 696,000 in 2015)
- Truck shipments of fresh fish to Boston (86,000 tons in 1997 growing to 110,000 in 2015)
- Truck shipments of miscellaneous nonmetallic minerals to the Southeast (53,000 tons in 1997 growing to 247,000 in 2015)
- Truck shipments of tires and tubes to the Southeast (49,000 tons in 1997 growing to 115,000 in 2015)
- Rail shipments of sawmill or planing mill products to the Southeast (42,000 tons in 1997 growing to 52,000 in 2015)
- Rail shipments of sawmill or planing mill products to Albany (37,000 tons in 1997

growing to 46,000 in 2015)

- Rail shipments of tires and tubes to the Southeast (33,000 tons in 1997 growing to 77,000 in 2015)

Table2-13: Detailed Forecast of Outbound Atlantic Canada Freight Tonnage by Major North American Destinations and Largest Commodity Groups

		1997		2010		2015	
Major Commodities from Atlantic Canada to the US, by US Hub		Total Tons	% of Total	Total Tons	% of Total	Total Tons	% of Total
Southeast US	Misc Nonmetallic Minerals	3,267,130	12.7%	10,258,767	18.2%	15,111,102	20.0%
New York / New Jersey	Misc Nonmetallic Minerals	1,437,724	5.6%	4,514,445	8.0%	6,649,751	8.8%
Erie	Iron Ores	1,353,115	5.3%	2,784,519	4.9%	3,323,127	4.4%
Chicago	Iron Ores	1,349,832	5.3%	2,777,763	4.9%	3,315,064	4.4%
Cleveland	Iron Ores	1,323,720	5.2%	2,724,028	4.8%	3,250,935	4.3%
Maine Region 7	Prod Of Petroleum Refining	1,213,572	4.7%	2,240,570	4.0%	2,838,118	3.8%
New York / New Jersey	Prod Of Petroleum Refining	1,184,166	4.6%	2,186,279	3.9%	2,769,346	3.7%
Boston	Prod Of Petroleum Refining	1,084,556	4.2%	2,002,372	3.6%	2,536,392	3.4%
Southwest US	Prod Of Petroleum Refining	1,081,126	4.2%	1,996,041	3.5%	2,528,374	3.3%
Washington DC	Misc Nonmetallic Minerals	927,525	3.6%	2,912,422	5.2%	4,289,980	5.7%
Southeast US	Gravel Or Sand	851,452	3.3%	2,673,554	4.7%	3,938,129	5.2%
Southeast New Hampshire	Misc Nonmetallic Minerals	586,277	2.3%	1,840,906	3.3%	2,711,643	3.6%
Southeast US	Industrial Chemicals	575,277	2.2%	1,062,112	1.9%	1,345,371	1.8%
New York / New Jersey	Crude Petrol. Or Natural Gas	461,308	1.8%	631,127	1.1%	589,481	0.8%
Erie	Misc Nonmetallic Minerals	458,635	1.8%	1,440,110	2.6%	2,121,273	2.8%
Southwest US	Misc Nonmetallic Minerals	408,415	1.6%	1,282,422	2.3%	1,866,412	2.5%
Kansas	Iron Ores	377,598	1.5%	777,044	1.4%	927,347	1.2%
Maine Region 3	Prod Of Petroleum Refining	350,879	1.4%	647,814	1.1%	820,582	1.1%
Washington DC	Iron Ores	312,036	1.2%	642,125	1.1%	766,331	1.0%
Philadelphia	Crude Petrol. Or Natural Gas	306,150	1.2%	418,851	0.7%	391,213	0.5%
All Other Destinations	All Other Commodities	6,715,076	26.2%	10,521,982	18.7%	13,477,600	17.8%
Total leaving Atlantic Canada for US Destinations:		**25,625,569**		**56,335,253**		**75,567,571**	
Growth 1997-2015:		Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Southeast US	Misc Nonmetallic Minerals	11,843,972		657,998		8.9%	
New York / New Jersey	Misc Nonmetallic Minerals	5,212,027		289,557		8.9%	
Erie	Iron Ores	1,970,012		109,445		5.1%	
Chicago	Iron Ores	1,965,232		109,180		5.1%	
Cleveland	Iron Ores	1,927,215		107,068		5.1%	
Maine Region 7	Prod Of Petroleum Refining	1,624,546		90,253		4.8%	
New York / New Jersey	Prod Of Petroleum Refining	1,585,180		88,066		4.8%	
Boston	Prod Of Petroleum Refining	1,451,836		80,658		4.8%	
Southwest US	Prod Of Petroleum Refining	1,447,248		80,403		4.8%	
Washington DC	Misc Nonmetallic Minerals	3,362,455		186,803		8.9%	
Southeast US	Gravel Or Sand	3,086,677		171,482		8.9%	
Southeast New Hampshire	Misc Nonmetallic Minerals	2,125,366		118,076		8.9%	
Southeast US	Industrial Chemicals	770,094		42,783		4.8%	
New York / New Jersey	Crude Petrol. Or Natural Gas	128,173		7,121		1.4%	
Erie	Misc Nonmetallic Minerals	1,662,638		92,369		8.9%	
Southwest US	Misc Nonmetallic Minerals	1,457,997		81,000		8.8%	
Kansas	Iron Ores	549,749		30,542		5.1%	
Maine Region 3	Prod Of Petroleum Refining	469,703		26,095		4.8%	
Washington DC	Iron Ores	454,295		25,239		5.1%	
Philadelphia	Crude Petrol. Or Natural Gas	85,063		4,726		1.4%	
All Other Destinations	All Other Commodities	6,762,524		375,696		3.9%	
Total leaving Atlantic Canada for US Destinations:		**49,942,002**		**2,774,556**		**6.2%**	

Inbound - To Atlantic Canada

By Commodity

In 1997, the Canadian Atlantic provinces received 2.6 million tons of freight from the US. This total is projected to grow at an average 5.3% per year through 2015, reaching 6.7 million tons. The five largest inbound freight are products of petroleum refining (393,000 tons), bituminous coal or lignite (339,000), pulp or pulp mill products (332,000), waste or scrap (185,000) and clay ceramic or refractory minerals (178,000). These collectively account for 54% of all tonnage from the US.

By Mode

Both truck and water shipments are significant for inbound tonnage, accounting in 1997 for 44% and 40%, respectively. Inbound truck freight amounted to 1.2 million tons in 1997. Important commodities for inbound truck freight are primary forest materials (accounting for a third of the truck total) and waste or scrap (8% of the total). Field crops at 4% are the next largest, with the remaining 55% diffused over many commodities. Truck imports of primary forest products are projected to grow at an average annual rate of 3.5% through 2015. Trucked receipts of waste and scrap will grow at a much more rapid 8.2% over the same period. Over the forecast period, trucks will gain share, drawing from both rail and water. For rail freight important commodities include clay or refractory minerals at 25% of 1997's total, broken stone or riprap at 14%, plastic material or synthetic fibers at 12%, and grain mill products at 7%. The key commodities entering by water include products of petroleum refining, bituminous coal or lignite, chemical or fertilizer minerals, and waste or scrap.

Table2-14: Forecast of Inbound Atlantic Canada Freight Tonnage by Mode: U.S. Points of Origin

Modes to Atlantic Canada from the US	1997 Total Tons	1997 % of Total	2010 Total Tons	2010 % of Total	2015 Total Tons	2015 % of Total
Rail	424,699	16.0%	756,106	15.2%	911,596	13.6%
Truck	1,170,027	44.0%	2,295,030	46.0%	3,411,463	50.9%
Water	1,063,324	40.0%	1,938,243	38.8%	2,384,389	35.5%
Total:	**2,658,050**		**4,989,379**		**6,707,447**	
Growth 1997-2015:	Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Rail	486,897		27,050		4.3%	
Truck	2,241,436		124,524		6.1%	
Water	1,321,065		73,393		4.6%	
Total:	**4,049,397**		**224,967**		**5.3%**	

By Origin

Quebec and Ontario are by far the largest originators of Atlantic Canada imports, forecast to account for 70% of combined truck and rail inbound freight in 2010, but declining to 66% by 2015. Each of these regions will ship over four million tons of freight to Atlantic Canada. The next largest origin in terms of tonnage is Maine, followed the US South. Maine is project to provide 8% of shipments to Atlantic Canada in 2010, growing to 9% by 2015. The US Southeast will contribute 5% (608,432 tons) in

2010 and 6% (777,120 tons) in 2015. Unlike the situation with destinations for Atlantic Province exports, Canadian provinces in addition to Quebec and Ontario are among the top import 9 origins.

As with exports from Atlantic Canada, the following table commodities by region includes only shipments from US regions. These are the top 20 items from a table with at total of nearly 2500 entries. The first six entries involve different commodities but that three of them are shipments from the Southeast. Energy products (products of petroleum refining and coal) hold a large number of the top spots. Each of the first four items is projected to decline between 1997 and 2015. The fifth item, waste or scrap originating in Boston will grow sufficiently fast to take the second spot by 2015.

Table2-15: Forecasted Growth in Truck and Rail Shipments to Atlantic Canada from Major North American Points of Origin

Major Origins for Truck and Rail Traffic to Atlantic Canada	1997 Total Tons	1997 % of Total	2010 Total Tons	2010 % of Total	2015 Total Tons	2015 % of Total
Quebec	3,403,379	38.8%	4,328,380	36.0%	4,564,737	34.3%
Ontario	3,305,287	37.7%	4,110,137	34.2%	4,272,520	32.1%
Maine	540,149	6.2%	974,254	8.1%	1,201,753	9.0%
Southeast US	316,052	3.6%	608,432	5.1%	777,120	5.8%
Alberta	220,584	2.5%	266,585	2.2%	276,100	2.1%
Southwest US	97,509	1.1%	207,469	1.7%	284,936	2.1%
Boston	88,907	1.0%	202,193	1.7%	294,727	2.2%
New York / New Jersey	76,422	0.9%	148,598	1.2%	193,411	1.5%
Saskatchewan	120,958	1.4%	130,700	1.1%	129,951	1.0%
All Other Points of Origin	593,183	6.8%	1,043,663	8.7%	1,298,345	9.8%
Total entering Atlantic Canada from all US & Canadian Origins	**8,762,430**		**12,020,411**		**13,293,600**	
Growth 1997-2015:	Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Quebec	1,161,358		64,520		1.6%	
Ontario	967,233		53,735		1.4%	
Maine	661,604		36,756		4.5%	
Southeast US	461,068		25,615		5.1%	
Alberta	55,516		3,084		1.3%	
Southwest US	187,427		10,413		6.1%	
Boston	205,820		11,434		6.9%	
New York / New Jersey	116,989		6,499		5.3%	
Saskatchewan	8,993		500		0.4%	
All Other Points of Origin	705,162		39,176		4.4%	
Total entering Atlantic Canada from all US & Canadian Origins	**4,531,170**		**251,732**		**2.3%**	

Among the modal insights behind the commodity / origin region rankings are:

- Truck shipments are entirely responsible for shipment of primary forest products for REMI region 1 (Aroostook County) in Maine. Truck shipments of fresh fish to Boston (86,000 tons in 1997 growing to 110,000 in 2015).
- Trucks are important to the rapidly growing shipments of waste and scrap, not only from Boston (42,000 in 1997 to 171,000 in 2015), but also from Albany (28,000 to

113,000).

- Trucks carry the majority of fresh vegetables from the southwest, an activity projected to grow from 20,000 tons in 1997 to 82,000 in 2015, an average annual growth of 8.2%.

Table2-16: Detailed Forecast of Inbound Atlantic Canada Freight Tonnage by Major North American Points of Origin and Largest Commodity Groups

		1997		2010		2015	
Major Commodities to Atlantic Canada from the US, by US Hub		Total Tons	% of Total	Total Tons	% of Total	Total Tons	% of Total
Maine Region 3	Primary Forest Materials	367,565	13.8%	604,888	12.1%	685,568	10.9%
New York / New Jersey	Bituminous Coal Or Lignite	178,483	6.7%	287,887	5.8%	323,467	5.1%
Southeast US	Clay Ceramic Or Refrac Minerals	152,227	5.7%	245,537	4.9%	275,883	4.4%
Southeast US	Chem Or Fertilizer Minerals	150,929	5.7%	243,444	4.9%	273,531	4.3%
Boston	Waste Or Scrap	133,912	5.0%	350,079	7.0%	549,599	8.7%
Southeast US	Prod Of Petroleum Refining	130,575	4.9%	254,104	5.1%	316,805	5.0%
Cleveland	Bituminous Coal Or Lignite	90,843	3.4%	146,527	2.9%	164,636	2.6%
Erie	Bituminous Coal Or Lignite	70,054	2.6%	112,994	2.3%	126,959	2.0%
Southwest US	Industrial Chemicals	67,903	2.6%	132,142	2.6%	164,748	2.6%
New York / New Jersey	Prod Of Petroleum Refining	64,592	2.4%	125,698	2.5%	156,714	2.5%
Southern Vermont	Broken Stone Or Riprap	44,077	1.7%	71,095	1.4%	79,881	1.3%
Boston	Prod Of Petroleum Refining	40,203	1.5%	78,236	1.6%	97,541	1.5%
Southwest US	Prod Of Petroleum Refining	28,687	1.1%	55,825	1.1%	69,600	1.1%
Southeast US	Gravel Or Sand	27,779	1.0%	44,806	0.9%	50,344	0.8%
Albany	Waste Or Scrap	27,661	1.0%	72,312	1.4%	113,525	1.8%
Philadelphia	Prod Of Petroleum Refining	26,503	1.0%	51,577	1.0%	64,303	1.0%
Southeast US	Plastic Mater Or Synth Fibres	24,825	0.9%	48,311	1.0%	60,232	1.0%
Southeast US	Misc Fabricated Products	24,674	0.9%	48,016	1.0%	59,864	1.0%
Maine Region 1	Field Crops	22,940	0.9%	59,971	1.2%	94,150	1.5%
Southwest US	Fresh Vegetables	19,873	0.7%	51,954	1.0%	81,564	1.3%
All Other Points of Origin	All Other Commodities	963,745	36.3%	1,906,598	38.2%	2,486,666	39.5%
Total entering Atlantic Canada from US Origins:		**2,658,050**		**4,992,001**		**6,295,580**	
Growth 1997-2015:		Total Change 1997-2015		Annual Average Increase: 97-15		Annual Growth Rate: 97-15	
Maine Region 3	Primary Forest Materials	318,003		17,667		3.5%	
New York / New Jersey	Bituminous Coal Or Lignite	144,984		8,055		3.4%	
Southeast US	Clay Ceramic Or Refrac Minerals	123,656		6,870		3.4%	
Southeast US	Chem Or Fertilizer Minerals	122,602		6,811		3.4%	
Boston	Waste Or Scrap	415,687		23,094		8.2%	
Southeast US	Prod Of Petroleum Refining	186,230		10,346		5.0%	
Cleveland	Bituminous Coal Or Lignite	73,793		4,100		3.4%	
Erie	Bituminous Coal Or Lignite	56,905		3,161		3.4%	
Southwest US	Industrial Chemicals	96,845		5,380		5.0%	
New York / New Jersey	Prod Of Petroleum Refining	92,122		5,118		5.0%	
Southern Vermont	Broken Stone Or Riprap	35,804		1,989		3.4%	
Boston	Prod Of Petroleum Refining	57,338		3,185		5.0%	
Southwest US	Prod Of Petroleum Refining	40,913		2,273		5.0%	
Southeast US	Gravel Or Sand	22,565		1,254		3.4%	
Albany	Waste Or Scrap	85,864		4,770		8.2%	
Philadelphia	Prod Of Petroleum Refining	37,800		2,100		5.0%	
Southeast US	Plastic Mater Or Synth Fibres	35,407		1,967		5.0%	
Southeast US	Misc Fabricated Products	35,190		1,955		5.0%	
Maine Region 1	Field Crops	71,210		3,956		8.2%	
Southwest US	Fresh Vegetables	61,691		3,427		8.2%	
All Other Points of Origin	All Other Commodities	1,522,921		84,607		5.4%	
Total entering Atlantic Canada from US Origins:		**3,637,530**		**202,085**		**4.9%**	

- Trucks are used for 96% of motor vehicles or equipment moving from Detroit and for all moving from Minnesota. The combined tonnage from both regions is forecast to grow from 33,000 tons in 1997 to 78,000 in 2015, a 4.9% growth rate.
- For movement of waste or scrap from Boston, water shipments are greater

importance than trucks (92,000 in 1997 to 380,000 in 2015).

- Water is the critical mode for shipments of coal, with originations in New York / New Jersey (178,000 in 1997 to 323,000 in 2015), Cleveland (91,000 to 165,000), and Erie (70,000 to 127,000).
- Rail is important for shipments of clay, ceramic, or refractory minerals from the Southeast and from New York / New Jersey. Water is close runner-up for shipments from the Southeast, but not from elsewhere.
- Although the total volumes are not great, rail is used for shipping grain mill products from Chicago, Iowa, and Buffalo. In each case, rail carries over 90% of the total, with trucks moving the rest.

Conclusion

Table 2-17 summarizes the implications of the preceding analysis as they relate to potential demand for an east-west highway through Maine. The table shows current (1997) and projected (2015) bidirectional truck freight movements between Maine / US, Maine / Canada, and Atlantic Canada / US origin destination pairs that are likely to be moved through Maine. In addition, the table shows combined Canada-Canada truck and rail flows that are potential candidates for diversion through Maine if an improved east-west transportation link were developed. **As shown, total bi-directional truck freight carried to, from and through Maine is projected to grow by almost 1.0 million tons per year through 2015.** Total bidirectional truck freight that is already likely to move to, from or through Maine, is forecast to grow from 22.6 million tons to 40.0 million tons by 2015. This represents an average growth rate of 970,000 tons (3.2%) annually over the forecast period.

Table 2-17: Summary of Projected Truck Freight Movements to, Through and Around Maine, 1997-2015

Annual Truck Freight Movements by Origin-Destination Pairs	Bi-Directional Flows (Millions of Tons)		Growth: 1997-2015		
	1997	2015	Total Change	Annual Average	Annual Growth Rate
Maine-US	15.2	23.8	8.6	0.48	2.5%
Maine-Canada	4.8	9.2	4.4	0.25	3.7%
Canada-US, Through Maine	2.6	6.9	4.3	0.24	5.6%
Subtotal: Truck Freight to, from and Through Maine:	**22.6**	**40.0**	**17.4**	**0.97**	**3.2%**
Potential Diversion: Canada-Canada Truck & Rail:	11.4	14.7	3.3	0.18	1.4%
Total E-W Highway Potential:	**34.0**	**54.7**	**20.6**	**1.15**	**2.7%**

Projected growth in the tonnage of commodities moved by truck will generate substantial increases in traffic to, from and through Maine, by the time the proposed east-west highway comes on line. Even if one assumes a fully loaded average of 40 tons per shipment, the projected growth in commodities moved by truck, will generate a minimum required increase of nearly 25,000 truck trips per year over the forecast period. By 2015, annual truck movements on state highways may be 500,000 higher than 1997 levels.

The potential to divert Canada-Canada freight movements through Maine is modest relative to projected truck volumes that are <u>already</u> likely to move through the State. Roughly 11.4 million tons of truck and rail freight moved between Atlantic Canada and the Central and Western Provinces in 1997. This volume is projected to grow to 14.7 million tons by 2015, an average of 180,000 tons (1.4%) per year over the forecast period. Some portion of this freight could also be diverted onto a Maine East-West Highway. As indicated in the table however, current and projected truck freight generated by O-D pairs that are already likely to move to, from or through Maine, greatly exceed Canada-Canada flows in both the aggregate and in their projected rates of growth over the 18 year forecast.

III

Tourism Survey Research Findings

Overview

As part of the economic impact analysis of the effects of the proposed East-West Highway on the State of Maine, Davidson-Peterson Associates was subcontracted by RKG Associates to conduct a program of research on tourism. More specifically, the goal of the research was to estimate how potential time savings, associated with improved highway access to Central and Northern Maine, might influence future tourism travel to or through the State.

The scope of the research was therefore focused to potential external tourism markets located to the east and west of Maine, which would realize improved access to the interior of state via any of the conceptual highway corridors described in the introduction to this technical report. The research also focused on those tourism destinations within Maine that would be made more accessible to these external markets.

Improved east-west transportation routes in Maine might also be expected to alter tourism travel patterns among Maine residents, or perhaps change the ultimate Maine destinations of other tourists, once they are inside the State. However, the scope of this survey research was limited to measuring the potential economic development impacts of increased, externally generated travel to or through Maine. The potential of an east-west highway to alter the existing regional distribution of tourism spending in Maine was beyond the scope of this survey effort, but will be addressed in later reports.

Part 1 of this chapter describes the findings of interviews with Maine tourism officials, completed in January of 1999, in those regions that may be serviced by an east-west highway. Tourism leaders in various Maine destinations were asked to share their impressions concerning the need for and desirability of an east-west highway. Part 2 of this chapter reports the findings of a telephone survey of selected key market areas of the United States and Canada, that would be made more accessible to Maine if improved east-west transportation routes were constructed within the state. This residential telephone survey was conducted in January and February of 1999 and included 2,000 residents and households in the selected market areas.

Additional detail concerning the scope, methodology and findings of the tourism research program is provided below.

Survey of Key Tourist Destinations

Introduction

The purpose of this portion of the study is to gather impressions from those in Maine

who serve Canadian tourists as well as tourists from within the US concerning the need for and desirability of the east-west highway. In so doing we undertook a number of tasks including:

- Identify tourism destinations whose visitors could benefit from the building of a new east-west highway in the state of Maine,
- Identify tourism leaders in each destination, and
- Interview these tourism leaders.

Key tourism destinations in Maine that could be affected by the building of a new east-west highway in the state of Maine were identified. These destinations are:

- Bar Harbor/Ellsworth
- Rockland/Camden
- Bangor
- Greenville
- Millinocket
- Bethel
- Old Orchard Beach
- Wells/Ogunquit
- Rangely
- Carrabasset Valley

We interviewed Chamber of Commerce executive directors or presidents in each of the areas and asked them to suggest other tourism leaders in their communities. We also contacted non-regional tourism leaders such as retail interests, Ski Maine Association, the Forum Francophone Des Affaires, and Bangor International Airport. A complete list of the tourism leaders with whom we spoke and various illustrative verbatim comments from the discussions may be found in the Appendix A.

Summary Findings

The Role of Canadian Visitors

The role of Canadian visitors varies by region. Tourism leaders in each region report different experiences in the proportion of their visitors who are from varying regions in Canada.

- The leaders in the **mountain areas** report that they have a small percentage of visitors from the Maritime Provinces. Fewer visitors, they report, come from Quebec and Montreal. They feel Canadians from those areas have mountains in their own areas and are not inclined to travel to Maine to experience the mountains. There is also competition from Vermont and New Hampshire since these states also offer the mountain experience.
- Leaders in **Greenville, Millinocket, and Rangley** report they have very few visitors from Canada. They feel this is due to the fact that their region is much like regions in Canada. They feel they just do not have anything different to offer Canadians

that they can't get in their own country.

- The leaders in the **mid-coast regions and downeast Maine** say they have very few Canadian visitors to their area. They feel that those in the Maritime Provinces are not drawn to their area because they have the coastline in their own areas. Some feel Canadians from Quebec and Montreal are drawn to the southern coast not the mid-coast. One person we spoke with feels the mid-coast region is an upscale destination and cannot attract the families from Quebec and Montreal as the southern coast does. Another says he/she is not sure why Canadians do not come but thinks it could be due to the fact that the mid-coast region is not French-speaking.
- The leaders in the **southern coast** report that they have many Canadian visitors. They are reportedly coming primarily from the Quebec area and are likely to be French-speaking. Although the percentage of Canadian visitors to the southern coast is estimated at up to 30% of all visitors in some areas, the number has declined over the past few years. Those in the southern region attribute this decline to the currency exchange rate.

Canadians' Access to the State of Maine

Opinions on Canadians' ease of access to Maine vary among tourism leaders but not necessarily by region. Some believe that poor access to and through the state deters Canadian visitation. Others say that although travel from Canada to parts of Maine may be difficult, it does not deter Canadian visitors from coming here. Some feel access to Maine is more of a problem for other areas such as Vermont and upstate New York.

Most tourism leaders feel that the biggest (current) impediment to Canadian visitation is the currency exchange rate. Many feel that the decline in the value of the Canadian dollar has caused a decline in the number of Canadians visiting the state of Maine. One leader feels that immigration and customs is more of a problem than the exchange rate. Only a few think highway access is the biggest impediment to Canadian visitation.

Awareness of the Proposed East-West Highway Among Maine Tourism Officials

Maine tourism leaders are generally aware that an east-west highway has been proposed. Most say they have been hearing about the highway for a number of years. Although some cannot remember where they first heard about the highway, the majority say they heard about the proposed highway in the news. Others have heard politicians talking about the highway, particularly around the elections, or from Chamber of Commerce meetings. Some have heard where the highway may be located; others have not.

Most tourism leaders whom we spoke with think an east-west highway will be built. Most feel it will not happen, however, for a number of years. Few think it will happen in the next ten years.

About half of the people whom we spoke with have an opinion on where the highway should be located. Those who do not have an opinion think it should be determined by engineering, environmental, or planning considerations.

Most of those that do have an opinion feel the highway should continue along Route 9 through Bangor but are split on whether it should go along Route 2 through Bethel or along Route 27 through Coburn Gore. Only a few that deviate from this route. These

people feel it should go farther north along Route 16 and Route 201 out through Jackman. One leader feels it should go through Portland and connect New Hampshire and Vermont.

Perceived Benefits of the Proposed Highway

The benefits of an east-west highway in the state of Maine are seen as: improved access to and through Maine; increased visitation from those in Canada, New Hampshire, Vermont, and upstate New York; safer, more efficient roads carrying tourists, residents, and commerce; and increased flow of commerce.

- **Many tourism leaders feel that an east-west highway would improve access to and through the state.** Some feel that an east-west highway will allow tourists to combine trips. Instead of going either to the mountains or to the coast, they may be more likely to combine the trips and go to both regions on one trip. Some also feel that this will increase the number of visitors from Canada or other New England areas. An east-west highway, some feel, will provide an alternative to traveling on Route 1 to get to the coast.
- **Many feel that the increased access will attract more visitors from Canada, New Hampshire, Vermont and upstate New York.** Few even believe it would increase European visitation by helping marketing campaigns for the fly-drive program.
- **Many tourism leaders, especially in the central and northern regions, think that one of the benefits of an east-west highway is safer, more efficient roads.** Although some feel the road system that exists presently is part of the character and charm of the state of Maine, many feel that improved road systems such as an east-west highway, are vital to the future of Maine.
- **Some tourism leaders feel that the east-west highway would increase the flow of commerce in the state of Maine.** Currently, on some roads in Maine commerce is slowed.
- **An east-west highway would increase the flow of commerce within the state.** Some feel it would also open up commerce between Canada and Maine as well as commerce from Canada to Canada or to other parts of the United States.

Perceived Problems of the Proposed Highway

Many of the tourism leaders that we spoke with see no problems with the proposed east-west highway from a business perspective. Those who do have concerns fee; visitors may move too fast through the state, the highway will consume limited financial resources in the state, and the highway may have negative environmental impacts.

- Some tourism leaders feel that Maine is as the slogan says "the way life should be". They feel the slower pace of the road system is in keeping with the way of life in Maine and that high speed highway systems in the state will detract from the Maine experience. They also feel that the faster pace on highways will cause many tourists to pass too quickly though Maine. They fear this will cause them to miss the quaint towns and scenery that attract people to the state.
- Another concern is that limited financial resources will be absorbed by this project and there will not be money left to go to other projects that may be necessary. Of particular concern is the condition of existing roads throughout the state of Maine.

A few feel that Maine should make sure all existing roads are up to code before building the east-west highway.

- Another concern is the environmental impacts of such a project. Also, if the road dissects rural communities or farmlands or is placed in an environmentally sensitive location it could ultimately detract from the tourist experience.

Summary

Our findings suggest that the proposed east-west highway will have modest support from those in the tourism community. The most enthusiastic supporters seem to be from the Bangor area - the focal point for the new road regardless of where it enters or leaves the state. Tourism leaders in some regions do not anticipate an increase in Canadian visitation to their areas. Leaders in those regions where the proposed highway corridors would be located do not currently have significant numbers of Canadian visitors and do not expect a lot of growth in this market. Increased visitation resulting from the highway might therefore benefit existing Canadian destination areas in the south, rather than in northern Maine. At the same time, the majority of tourism leaders do feel the highway will benefit tourism in the State overall by making access easier and quicker for both Canadians and northern New England residents. Tourism leaders also believe that the road will permit better circulation of tourists in Maine, perhaps extending their stays.

Residential Telephone Survey

Introduction and Methodology

This portion of the study was conducted from January 1999 to February 1999 and consisted of a telephone survey of 2,000 residents in selected key market areas of the United States and Canada. These market areas were selected because they are either currently recognized as tourism markets for Maine, or are geographically located in areas that would be made more accessible to Maine via one or more of the proposed East-West Highway corridors.

This survey was conducted to assess the tourism potential of a new East-West Highway. The specific objectives of the research were:

- To determine the amount of travel to and through the State of Maine from the key market areas in 1997 and 1998;
- To evaluate characteristics of these trips to and through Maine, including:
    - Time of year the trip was taken,
    - Purpose of the trip (business or pleasure),
    - Number of people on the trip,
    - Number of nights spent in Maine, and
    - The primary destination.
- To determine what routes are generally used in traveling to and through Maine;
- To assess anticipated travel to and through Maine in 1999; and

- To test the theoretical impact of improved highway access and travel time savings on future visitation to the state.

Davidson-Peterson Associates purchased a randomized list of telephone numbers in 11 tourism market areas surrounding Maine. These areas were selected based upon their proximity to the five conceptual highway corridors and their resulting potential to benefit from reduced travel times into the interior of the State, if an east-west highway were built. Telephone interviews were conducted in each of these areas, in the quantities indicated in Table 3-1.

Table 3-1: Market Areas Surveyed

	Number of Interviews Conducted	
CANADA (Total)		**1,500**
Ontario/Quebec		**1,300**
• Montreal, Quebec	500	
• Quebec City, Quebec	300	
• Toronto, Ontario	500	
Atlantic Provinces		**200**
• Moncton, New Brunswick	50	
• St. John, New Brunswick	50	
• Fredericton, New Brunswick	50	
• Halifax, Nova Scotia	50	
UNITED STATES (Total)		**500**
• New Hampshire	125	
• Vermont	125	
• Western New York	125	
• Eastern New York	125	
TOTAL		**2,000**

Due to sampling constraints, phone calls were restricted to primarily urban areas. In addition, the only areas surveyed were those that could become more accessible to Maine should an East-West Highway be constructed. Therefore, the sample may not be completely representative of Maine's entire tourism market, as many of these regions are too geographically distant from Maine to generate day trip visitors.

The questionnaires used for each area sampled and the detailed data tabulations may be found in Appendix B.

Limitations of the Survey Findings

There are certain issues in the analysis of this survey that the reader should be

cautioned about.

First of all, telephone survey respondents cannot be expected to comment on their potential use of highway facilities that would take several years to build. Therefore, a hypothetical case had to be created in which respondents were asked whether or not they would alter their travel plans over the coming season if the proposed highway existed today. It is difficult to project one-year plans in a hypothetical situation to long range projections of increased visitation resulting from an East-West Highway. Travel plans for 1999 may differ greatly from travel plans over the next ten years, for example.

Second, in a telephone survey, one cannot get very specific in terms of describing the actual locations of potential East-West highway corridors. This would have certainly resulted in a survey that was too long and would have confused most respondents who are not likely to be thoroughly familiar with Maine and its bordering states and provinces. Therefore, respondents were presented with an estimated maximum reduction in travel times to a single location from their home.

In addition, those respondents who indicated they would increase travel to Maine were not asked to speculate on where they would go. This might have been interesting data to collect, but, again, the length and clarity of the survey would have been compromised. Therefore, it is probable that some respondents answered the question assuming that similar time savings would apply to several destinations in Maine.

Another issue has to do with respondents' estimates of planned travel to and through Maine in 1999. In the survey, respondents were first asked to elaborate on trips they had taken to and through Maine during a two-year time period (1997 through 1998). After completing this portion of the survey, they were then asked about their plans for travel to and through Maine during 1999. It is our hypothesis that the majority of respondents did not switch from thinking about a two-year time period to a one-year time period. Therefore, we believe that the estimates given for planned 1999 travel are likely double what they should be.

This can be partially substantiated by examining the data more closely. For example, respondents in Montreal state that, in 1997 and 1998, they took an average of 0.13 trips to Maine (two years). These same respondents then stated that they planned to take an average of 0.14 trips to Maine in 1999 (one year). This same rough pattern is evident throughout the remaining areas sampled. Therefore, we have adjusted the 1999 data to reflect our hypothesis. All means calculated for planned 1999 travel have been divided by two to adjust for the fact that respondents were likely to be answering for a two-year time period. As our intentions were to measure market response to the East-West Highway and not to predict 1999 travel plans to Maine, this issue is not of extreme concern.

In addition, the survey was not successful in determining the percentage of people who go around Maine versus those who travel through Maine. Therefore, in dealing with respondents' planned 1999 travel through or around Maine, figures are presented in sum only. There is no distinction noted between those who travel through Maine using Maine roads and those who travel around Maine using the Trans-Canada highway.

The combined effects of all of these limitations probably tend to overstate market response to the highway. Also, we did not survey in-state residents for budgetary reasons. To the extent that an East-West Highway would reduce travel times within the state, an increase in in-state tourism travel might also be expected, however, this was beyond the scope of this survey to estimate.

Demographic Characteristics of the Respondents

The demographic characteristics of the survey respondents are shown in Table 3-2 and can be summarized as follows:

- Twenty-nine percent of the respondents are between the ages of 18 and 34, and 27% are between the ages of 35 and 44.
- Six in ten have at least a two-year college degree (59%).
- Fifty-eight percent of the respondents are female, and 42% are male.

Table 3-2: Demographic Characteristics of the Sample

Age Distribution of Survey Respondents	
18 to 34	29%
35 to 44	27%
45 to 54	20%
55 to 64	10%
65 or older	13%
Educational Attainment of Survey Respondents	
Primary school / some high-school	12%
High-school graduate	27%
Two-year college degree	21%
Four-year college degree	26%
Post-graduate work	12%

As indicated in the table, a large proportion of the sample is young and rather well-educated; 56% are younger than 45 years and 38% have at least a four-year college degree. A comparable study conducted by Longwoods International (Maine's Canadian Travel Market - 1997 Travel Year) resulted in 45% of the sample being under the age of 45. Therefore, our younger sample could be assumed to be more likely to travel; this point should be noted in analyzing the results of respondents' travel habits and plans.

Survey Findings

1997 and 1998 Trips To and Through Maine

Travel to Maine

Respondents were initially asked how many trips they took in 1997 and 1998 to sites in Maine. The mean number of trips taken to Maine in 1997 and 1998 ranged from 0.02 trips per household (Toronto residents) to 1.63 trips per household (New Hampshire residents). In the 11 areas sampled, the average number of trips per household taken to Maine in 1997 and 1998 was 0.28.

Table 3-3: Mean Number of Trips Taken to Maine

Montreal	0.13	Halifax	0.12		
Quebec	0.11	New Hampshire	1.63		
Toronto		0.02	Vermont	0.82	
Moncton	0.28	Western New York	0.03		
St. John	1.06	Eastern New York	0.18		
Fredericton	1.00				

Using the household counts shown in Table 3-4 below, these means were projected to the total households. For example, households in Montreal took an average of 0.13 trips to Maine in 1997 and 1998. The mean number of trips (0.13) was multiplied by the number of households in Montreal (1,235,720) to estimate the total number of trips to Maine from residents of each area (160,643 for Montreal).

Table 3-4: 1990 Household Counts for Selected Areas

Montreal	1,235,720	Halifax	118,320		
Quebec	253,365	New Hampshire	7,576		
Toronto		1,366,700		Vermont	23,974
Moncton	36,735	Western New York	229,116		
St. John	45,170	Eastern New York	65,046		
Fredericton	26,400				

In projecting each of these figures to household counts in each area, there were an estimated 365,201 trips to Maine in 1997 and 1998 for these selected areas.

The majority of these trips (58%) were taken in 1998. Those areas that produced the largest increase in travel from 1997 to 1998 were the United States (32% in 1997 and 63% in 1998) and the Atlantic Provinces in Canada (33% in 1997 and 60% in 1998). Residents of Quebec province took fewer trips to Maine in 1998 than in 1997 (59% in 1997 and 41% in 1998).

The average number of people on each of these trips to Maine was 2.85, with a high of 2.94 people on trips originating in New Hampshire and a low of 1.78 people on trips originating in Moncton, New Brunswick. Visitors spent an average of 2.88 nights in Maine. Travelers from Montreal spent an average of 3.65 nights, while those from Fredericton, New Brunswick spent an average of 0.91 nights in Maine.

These results compare favorably with a similar study conducted by Longwoods International (Maine's Canadian Travel Market - 1997 Travel Year). Though the average number of people in each travel party is slightly higher in this study compared with the Longwoods International study, this study did not capture a large number of day travelers due to the areas sampled. While roughly 23% of these total trips to Maine were day trips (versus 85% in the Longwoods International study), as one would expect, there were no day trips originating in Halifax, Toronto, or New York state.

Travelers were most likely to mention Portland as their primary destination on their trip to Maine (13%). Trips to Old Orchard Beach (8%) and Calais (7%) were also quite prevalent. Twenty-six percent of these 1997 and 1998 trips were to destinations in York County, and 22% were to destinations in Cumberland County. Thirteen percent of respondents listed sites in Washington County and Hancock County as their primary destination.

By determining the average number of people on each trip and the average number of nights spent in Maine on each trip, we can estimate that Maine received visitors in the amount of 2,824,032 person-nights during 1997 and 1998 from the sampled areas.

Travel through Maine

Respondents were also asked about trips they had taken through Maine on their way to other states or provinces. The households surveyed took an average of 0.13 trips through Maine in 1997 and 1998. Residents of Fredericton, New Brunswick took an average of 0.62 trips through Maine, while residents of Western New York took an average of 0.01 trips through Maine in 1997 and 1998.

Table 3-5: Mean Number of Trips Taken Through Maine

Montreal	0.13	Halifax	0.20		
Quebec	0.10	New Hampshire	0.29		
Toronto		0.04	Vermont		0.10
Moncton	0.46	Western New York	0.01		
St. John	0.36	Eastern New York	0.03		
Fredericton	0.62				

Projecting the mean number of trips taken through Maine to household counts in these areas yields an estimate of 322,647 trips through Maine in 1997 and 1998. Roughly equal percentages of these trips were taken in 1997 (51%) and 1998 (49%).

The average number of people on each of these trips through Maine in 1997 and 1998 was 2.79. Residents of Montreal had the highest average number of people on each trip (2.89), while residents of Western New York had the lowest average (2.00). While traveling through Maine on their way to another destination, travelers spent an average of 1.27 nights in Maine. Residents of Vermont spent an average of 3.00 nights in Maine while traveling through the state, and residents of Montreal spent an average of 0.75 nights in Maine.

Sixty-one percent of these trips through Maine were to destinations in the United States, while 39% were to destinations in Canada. Examining specifically those trips through Maine that originated in Canada, 76% were to United States destinations, and 24% were to Canadian destinations.

When traveling through Maine in 1997 and 1998, 11% of travelers listed Nova Scotia as their primary destination. Florida was the primary destination of 9% of the trips through Maine, and New York was the destination for 8% of the trips.

By examining the average number of people on each trip through Maine and the average number of nights spent in Maine on these trips, we can estimate that Maine received visitors traveling through the state in the amount of 876,183 person-nights during 1997 and 1998 from the sampled areas.

In combining the projected estimates of travel to Maine and travel through Maine in 1997 and 1998, there were an estimated 687,848 trips to or through Maine in the last two years, and an estimated 3,700,215 person-nights spent in Maine during these trips.

Looking specifically at Canadian overnight travel to Maine, approximately 573,058 Canadian overnight travelers visited Maine in 1997. That comprises only 52% of the total Canadian overnight travelers to Maine in 1997 (1.1 million overnight visitors according to Maine's Canadian Travel Market - 1997 Travel Year; Longwoods International).

Routes Used in Traveling To or Through Maine

Travelers were asked to indicate which routes they generally use in traveling to or through Maine. The most frequent responses for each sampled area are shown below.

Table 3-6: Routes Used in Traveling To or Through Maine

Quebec Province	Route 73	(22%)
	I-95	(21%)
Atlantic Provinces	I-95	(49%)
	Rt. 9/the Airline	(26%)
Toronto, Ontario	I-95	(50%)
United States	Route 302	(24%)
	I-95	(22%)
	Route 2	(21%)

Planned 1999 Trips To and Through Maine

Planned 1999 Travel to Maine

When asked, respondents indicated that they plan to take an average of 0.15 trips to Maine in 1999. Residents of New Hampshire plan on taking the most trips (1.05), while residents of Toronto plan on taking the fewest trips to Maine in 1999 (0.03).

Table 3-7: Mean Number of Planned Trips to Maine in 1999

Montreal	0.07	Halifax	0.04
Quebec	0.06	New Hampshire	1.05
Toronto	0.03	Vermont	0.43
Moncton	0.16	Western New York	0.06
St. John	0.26	Eastern New York	0.07
Fredericton	0.31		

By projecting the average number of planned trips to Maine in 1999 to household counts, we can estimate that there will be 209,311 trips to Maine from the sampled areas in 1999. These projected 1999 trips are about the same as those taken in 1998.

In examining those respondents who indicated that they plan to travel to Maine in 1999, it is interesting to note that the majority of those who stated that they would travel in 1999 did not travel to Maine in either 1997 or 1998. (Of the 324 respondents who indicated that they plan to travel to Maine in 1999, 41% of them actually did travel to Maine in 1997 or 1998, while 59% did not travel to Maine in the past two years.)

Planned 1999 Travel through Maine

The households surveyed plan to take an average of 0.35 trips through Maine on their way to other destinations in 1999. Residents of Fredericton, New Brunswick plan to take the largest number of trips (0.88), while residents of Western New York and Eastern New York plan on taking the fewest trips through Maine in 1999 (0.05 and 0.06, respectively).

Table 3-8: Mean Number of Planned Trips Through Maine in 1999

Montreal	0.29	Halifax	0.40		
Quebec	0.31	New Hampshire	0.14		
Toronto		0.28	Vermont		0.11
Moncton	0.71	Western New York	0.05		
St. John	0.64	Eastern New York	0.06		
Fredericton	0.88				

By projecting the average number of planned trips through Maine in 1999 to household counts in these areas, we can estimate that there will be 962,818 trips through Maine from the sampled areas in 1999.

In analyzing only those respondents who plan to take a trip through Maine in 1999, exactly half had traveled through Maine in 1997 or 1998, and half had not traveled through Maine in 1997 or 1998.

Potential Impact of Improved Highway Access on Travel Patterns

Highway Impacts on Planned Travel to Maine

To illustrate the potential travel effects of an improved east-west transportation route through Maine, respondents were presented with a hypothetical situation in which highway improvements could be made that would reduce current driving times from their respective areas to certain locations in Maine, or locations which could be accessed by driving through Maine. The locations given to each respondent, and reduction in driving time reported to them, corresponded to general corridor locations and estimated maximum time savings associated with the five conceptual highway corridors. The phrasing of the question therefore depended on the area being surveyed, as illustrated in Table 3-9.

Table 3-9: Time Savings Presented to Tourism Survey Respondents

	Trips To Maine		Trips Through Maine	
Market Area Surveyed	**Destination Given**	**Time Savings Given**	**Destination Given**	**Time Savings Given**
Quebec City	Bangor, ME	Up to 30 min.	Maritime Provinces	Up to 1 hour
New Brunswick / Nova Scotia	Bangor, ME	45 minutes	Montreal	1 hour, 25 min.
Montreal / Toronto	Bangor, ME	45 minutes	Maritime Provinces	1 hour, 25 min.
United States	Bangor, ME	Up to 1 hour	Maritime Provinces	Up to 1 hour, 30 minutes

Survey participants were then asked how this hypothetical time saving would impact their planned travel to Maine in 1999, as previously reported, *if the highway improvements already existed.* While 85% of the households interviewed indicated that they would take the same number of trips to Maine, 15% indicated that they would take more trips to Maine if highway improvements were in place. Thirty percent of those surveyed in St. John, New Brunswick indicated that they would take more trips to Maine, while 8% of those surveyed in Quebec City, Quebec indicated that they would take more trips.

Those who stated that they would take more trips to Maine if highway improvements were made indicated that they would take an average of 0.82 more trips to Maine in 1999. Residents of New Hampshire would take an average of 1.19 more trips to Maine, while residents of Fredericton, New Brunswick would take an average of 0.60 more trips to Maine in 1999.

In combining the estimated number of additional trips taken due to the highway and the estimated number of trips which remain the same, the numbers indicate that 346,267 more trips would be made to Maine in 1999 if proposed highway improvements were in place which provide comparable time savings to the conceptual east-west highway corridors.

This increase must be viewed cautiously, however, for two reasons. First, it should be understood that no single conceptual east-west corridor is capable of providing the time savings indicated in Table 3-9, to all of the market areas included in survey. Therefore, potential travel increases indicated by the survey, need to be adjusted downward when applied to a single corridor.

Secondly, as was mentioned earlier, a high percentage of those who indicated that they would travel in 1999 actually did not travel to Maine in 1997 or 1998. Of those respondents who stated that they would take more trips to Maine as a result of highway improvements, 67% had previously indicated that they did not plan to travel to Maine in 1999. In addition, among these same respondents who indicated that they would take more trips to Maine as a result of the highway improvements, 82% of them had not traveled to Maine in either 1997 or 1998. Travel time today would appear to be a reason not to visit Maine for some. In addition, respondents were not asked to indicate what their destinations would be on these additional trips or if these increased trips would be recurring over the next several years.

Highway Impacts on Planned Travel through Maine

Survey participants were then asked the same hypothetical question, whether they would increase their planned number of trips through Maine if a highway existed which reduced travel times to various destinations by traveling through the state. (See Table 3-9 for the time savings used.) Roughly 21% of those surveyed indicated that they would take more trips through Maine in 1999. Thirty percent of those surveyed in Fredericton, New Brunswick and 30% of those surveyed in New Hampshire indicated that the highway improvements would lead them to take more trips through Maine. Among residents of Quebec City, Quebec, only 11% indicated that they would take more trips through Maine if improved highways existed.

Those who indicated that they would take more trips through Maine if the proposed highway improvements were made would take an average of 0.77 more trips in 1999. Residents of St. John, New Brunswick indicated that they would take an average of 1.04 more trips through Maine, while residents of Halifax, Nova Scotia would take an average of 0.59 more trips through Maine.

In combining the estimated number of additional trips which might be taken due to the existence of improved highways, with the estimated number of trips which are not affected, improved highway access would result in an increase of 953,610 trips through Maine. This increase in trips is roughly triple the estimated impact of shortened travel times on trips to Maine destinations. A substantial portion of this increase is assumed to represent the potential diversion of already planned Canada/Canada trips off of the Trans Canada Highway through Maine. The results also indicate that shortened travel times through Maine could benefit Atlantic Canada tourist destinations, as well as encourage Canadians to travel more frequently to US destinations to the south and west of Maine.

Once again, this increase must be viewed cautiously. Of those respondents who stated that they would take more trips through Maine as a result of the proposed highway improvements, 70% had previously indicated that they did not plan to travel through Maine in 1999. In addition, among respondents who indicated they would take more trips through Maine as a result of highway improvements, 61% had not traveled through Maine in either 1997 or 1998.

The combined effects of travel time savings on potential trips to and through Maine and the associated number of person-nights spent in the State, are summarized in Table 3-10.

Table 3-10: Respondents' Reactions to Potential Time Savings Associated with Conceptual East-West Highway Corridors

Impact on Travel to Maine	
Increase in Planned 1999 Trips to Maine	346,267
Increase in Planned 1999 Person-Nights in Maine	2,968,387
Impact on Travel through Maine	
Increase in Planned 1999 Trips through Maine	953,610
Increase in Planned 1999 Person-Nights in Maine	3,191,695
Total Potential Impacts on to- and through-travel	
Number of Trips	1,299,877
Number of Person-Nights in Maine	6,160,082

Conclusion

In conclusion, survey respondents indicate that they would significantly increase their travel to and through Maine, in response to reductions in travel times that could be accomplished through the construction of the conceptual east-west highway corridors. It can be concluded that the proposed highway improvements will be an incentive for a sizable proportion of people to travel to Maine more often.

It must be noted, however, that in comparing the increased travel to actual estimated travel in 1997 and 1998, the impacts are very large. As stated earlier, various limitations of the study may have contributed to an overstatement of the actual market response to a new highway. Specifically:

- Respondents were only asked to anticipate their travel plans over the next year; projecting these figures to continual travel over a longer period of time is difficult.
- Secondly, respondents were not presented with specific highway corridors; rather, they were given one single time saving to one particular destination. Respondents may have mistakenly assumed that this same time savings would apply to all of their normal destinations in Maine.
- Finally, the above results reflect market response to the maximum achievable time savings provided by all five of the conceptual corridors evaluated in this study. No single east-west corridor is capable of providing comparable time savings to all of the markets sampled by this survey.

All of these factors tend to be biased toward an overstatement of respondents' travel plans. Therefore, applying these survey results to project actual annual visitation to Maine, to any single conceptual east-west highway corridor, must be approached very cautiously. It is not uncommon to discount respondents' stated intentions by large percentages in order to arrive at the actual actions they may undertake.

Regardless of these potential biases, however, it is important to note that the survey did find significant levels of recent travel to and through Maine, even from markets as far west as Toronto. A significant percentage of these respondents, about 15%, indicated

that their travel patterns to or through Maine could be influenced by an improved east-west transportation route within the state. Among some respondents, even very modest time savings, relative to the total trip length required to reach and return from Maine, would be sufficient to induce them to make more trips to or through the state. These results are encouraging and suggest that an east west highway would generate an increase in tourism travel to Maine.

IV

Business Survey Research Findings

Introduction

The following Chapter discusses in detail, the findings reported from 152 Maine businesses that participated in a survey of issues related to the proposed Maine East-West Highway. The purpose and objectives of this survey were to:

- Develop information concerning current patterns of trade and freight traffic to/from Maine companies and surrounding regions that would become more accessible to the State if an east-west highway were built;
- Gain insights into how businesses might respond to potential improvements to east-west transportation routes through Maine;
- Determine how Maine businesses perceive their likelihood of use, and resulting benefits to be gained from the five conceptual corridors, as a basis for ranking the alternatives;
- To uncover potential regional variations of business opinion regarding the potential benefits to be derived from and resulting need for an east-west highway through Maine;
- Obtain information that can be used to help quantify business (truck) traffic growth, as well as transportation cost savings, associated with each of the proposed corridors; and
- Solicit opinions on a variety of issues related to US/Canada trade, including perceived trade opportunities and impediments, the potential contribution of an east-west highway toward increasing trading relationships with Canadian businesses, and the possible effects of tolling the highway.

The scope of the survey research also included comparable questionnaires sent to both Canadian companies and Northeastern US firms, in locations that would potentially benefit from a more direct east-west highway connection through Maine. Returns from each of these efforts were disappointingly low, with each resulting in return rates of less than two percent. Because such low returns have limited usefulness, we have not included a detailed presentation of those survey results in this technical report. However, some of the returned information is relevant and will be considered in the impact analysis phase of the study.

Methodology

The methodology used in this analysis was a direct mail survey to approximately 1,300 Maine businesses. The survey mailing list was <u>not</u> intended to reflect a random sample of all Maine employers. Rather, the sample was constructed to return data from a well-represented cross-section of the State's largest companies, in those industries which are most sensitive to transportation issues. To the extent that an east-west highway could

generate economic benefits to existing Maine employers, respondents to this survey would be most likely to understand the implications of such project, because any resulting transportation cost savings or productivity gains would benefit them directly.

Survey participants were thus selected from those industry groups which could be expected to benefit from reduced transportation costs, were likely to have customer or supplier relationships in Canada or the Northeastern US, and were located in regions of the state that could be serviced by one or more of the conceptual east-west highway corridors. In addition, survey participants were limited to businesses of a sufficient size, measured by either employment or sales, to suggest that they shipped or received significant volumes of freight. Businesses that were either too small, or were engaged in activities that were not transportation dependent, were omitted from the survey effort.

Table 4-1: Regional and Industry Distribution of the Survey Sample

Industry Distribution	Total Mailing List	Northern Maine [1]	Southern Maine [2]	% Distribution No. ME	% Distribution So. ME	Total Sample
Agr.,forestry & fishing	139	98	41	18.4%	5.2%	10.5%
Manufacturing						
Lumber & Wood Prods	181	110	71	20.6%	9.0%	13.7%
Paper Products	15	6	9	1.1%	1.1%	1.1%
All other Mfg	491	130	361	24.4%	45.9%	37.2%
Transportation / Trucking	79	36	43	6.8%	5.5%	6.0%
Whsing & Distribution	12	6	6	1.1%	0.8%	0.9%
Energy / Utilities	34	15	19	2.8%	2.4%	2.6%
Wholesale & Ret. Trade	331	107	224	20.1%	28.5%	25.1%
Services	38	25	13	4.7%	1.7%	2.9%
TOTAL [1]:	1,320	533	787	100.0%	100.0%	100.0%
Distribution	100.0%	40.4%	59.6%			
NOTES:						
[1]	Includes all 3-digit zips within Bangor & Waterville Sectional Centers (See Map 4-1)					
[2]	Includes all 3-digit zips within Augusta and Portland Sectional Centers (See Map 4-1)					

The distribution of the survey mailing list by industry group and region is presented in Table 4-1. To facilitate analysis of the data by region, survey recipients were sorted by three-digit postal zip codes. Postal zip codes designated as “northern” Maine, include those regions in which the majority of the conceptual east-west corridors are located. The “southern” Maine zip codes represent the balance of the state, generally including the Augusta region and points south and southwest. Map 4-1 shows the regional boundaries formed by the classification of the state’s postal zip codes used for this analysis.

Map 4-1: Geographic Definition used to Distinguish Survey Responses Between "Southern" and "Northern" Maine

As shown in Table 4-1, more than half of the surveys were mailed to manufacturing firms, including a large sampling of paper and wood products manufacturers. Large wholesale and retail trade establishments received 25% of the surveys and 10% were mailed to agricultural businesses. Although only 6% of the sample was made up of transportation firms, more than 80 of Main's most important trucking companies and warehousing and distribution centers were contacted. The balance of the surveys were mailed to selected service industries such as hospitals, utilities or other larger businesses that were assumed to be somewhat reliant on truck freight.

In total, just over 40% of the sample, more than 500 companies, were are located in northern Maine while the balance of nearly 800 firms were located in the more heavily populated southern region. Although smaller in number, the northern Maine sample includes a higher percentage of all employers located in that region, than the southern Maine sample.

The questionnaires were mailed in early February of 1999, followed by reminder post cards approximately three weeks later. Both the survey mailers and reminder post cards were accompanied by messages from Governor King, who explained the purpose of the research and urged recipients to participate. The survey instrument itself was a self mailer with an attached postage pre-paid self mailing return.

The questionnaire used to solicit responses, including some raw data from the survey, appear in Appendix C. Summary observations drawn from our analysis of the survey results are presented below.

Characteristics of Survey Respondents

The distribution of survey returns from each region is profiled in Table 4-2. As shown, 152 responses were received, an 11.5% return on from the initial mailing list. Returns were equally distributed between the northern and southern regions, with 76 returns received from each.

Comparatively high response rates were obtained from the lumber and wood products industry in northern Maine (a 25% return), as well as that region's agricultural and transportation sectors (each representing a 17% response rate). "Other" manufacturing, representing all remaining sectors outside of the lumber, wood products and paper industries, also exhibited high return rates of 46% in the southern region and 18.4% in the northern part of the state. Wholesale and retail trade industries in both southern and northern Maine also responded in high percentages in the survey.

Table 4-2: Industry Distribution of Survey Respondents

Statewide Sample	Mailing List Distribution	Survey Responses	% of Total Responses	Response Rate
Agr.,forestry & fishing	139	17	11.2%	12.2%
Manufacturing				
Lumber & Wood Prods	181	30	19.7%	16.6%
Paper Products	15	3	2.0%	20.0%
All other Mfg	491	49	32.2%	10.0%
Transportation / Trucking	79	16	10.5%	20.3%
Whsing & Distribution	12	1	0.7%	8.3%
Energy / Utilities	34	4	2.6%	11.8%
Wholesale & Ret. Trade	331	29	19.1%	8.8%
Services	38	3	2.0%	7.9%
Totals:	1,320	152	100.0%	11.5%

Northern Maine Sample	Mailing List Distribution	Survey Responses	% of Total Responses	Response Rate
Agr.,forestry & fishing	98	13	17.1%	13.3%
Manufacturing				
Lumber & Wood Prods	110	19	25.0%	17.3%
Paper Products	6	3	3.9%	50.0%
All other Mfg	130	14	18.4%	10.8%
Transportation / Trucking	36	13	17.1%	36.1%
Whsing & Distribution	6	1	1.3%	16.7%
Energy / Utilities	15	3	3.9%	20.0%
Wholesale & Ret. Trade	107	8	10.5%	7.5%
Services	25	2	2.6%	8.0%
Totals:	533	76	100.0%	14.3%

Southern Maine Sample	Mailing List Distribution	Survey Responses	% of Total Responses	Response Rate
Agr.,forestry & fishing	41	4	5.3%	9.8%
Manufacturing				
Lumber & Wood Prods	71	11	14.5%	15.5%
Paper Products	9	0	0.0%	0.0%
All other Mfg	361	35	46.1%	9.7%
Transportation / Trucking	43	3	3.9%	7.0%
Whsing & Distribution	6	0	0.0%	0.0%
Energy / Utilities	19	1	1.3%	5.3%
Wholesale & Ret. Trade	224	21	27.6%	9.4%
Services	13	1	1.3%	7.7%
Totals:	787	76	100.0%	9.7%

Current Employment Levels

Among the survey respondents, 96 operated out of one location and 41 respondents were part of larger organizations. In total, these companies have more than 19,600 full-time employees, including more than 16,300 workers at the 152 Maine locations represented in the survey. Survey participants from northern Maine had more than 7,600 employees, just under 40% of the total, while southern Maine respondents employed nearly 12,000 workers.

Table 4-3: Reported Employment Levels of Survey Respondents by Region

		Total Reported Employment			Average Employment	
Statewide Sample	Number Responses	Here	Other Locations	Throughout Organization	This Location	Throughout Company
Employment Here - no other locations	96	11,973	0	11,973	125	125
Employment Here - with other locations	41	4,363	3,118	7,481	106	182
No Local Employment Reported	3	0	0	199	NA	66
Total Respondents	140	16,336	3,118	19,653	117	140
No Response	12					
Northern Maine						
Employment Here - no other locations	49	1,704	0	1,704	35	35
Employment Here - with other locations	23	3,027	2,847	5,874	132	255
No Local Employment Reported	1	0	0	107	NA	107
Total Respondents	73	4,731	2,847	7,685	65	105
Percent of Total:	52.1%	29.0%	91.3%	39.1%	55.5%	75.0%
No Response	3					
Southern Maine						
Employment Here - no other locations	47	10,269	0	10,269	218	218
Employment Here - with other locations	18	1,336	271	1,607	74	89
No Local Employment Reported	2	0	0	92	NA	46
Total Respondents	67	11,605	271	11,968	173	179
Percent of Total:	47.9%	71.0%	8.7%	60.9%	148.4%	127.2%
No Response	9					

Although the total number of employees reported by survey participants is large, these companies together represent less than 3 percent of Maine's total employment, and their responses should be evaluated in that context. As stated previously, survey participants are also significantly larger than the typical Maine business, as indicated by the reported average of 140 employees per respondent. Northern Maine firms were smaller in terms of average employment (105 employees) than southern Maine firms (179 employees).

Responses to the remaining questions are summarized below. Detailed response tables are also provided in Appendix C.

Question 4 : Does your company currently have customers or suppliers in any of the following regions (listed in Table 4-4), to which you send or from whom you receive shipments at this location?

Respondents have significant numbers of customers and suppliers in regions that could be made more accessible by an east-west highway. More than 49% of respondents, statewide, have customers and / or suppliers in Atlantic Canada, 47% in Quebec, 26% in

Ontario / Western Canada, 55% in northern NH / VT, 56% in Western NY and 60% in the Midwest and Western US. In addition, 95% of the survey respondents had customers or suppliers located within Maine and 80% in Southern New England and the Mid-Atlantic States. *These percentages indicate that at least half of the statewide sample currently does business in regions that could be made more accessible to the interior Maine, via an east-west highway corridor.*

Table 4-4: Percent of Respondents with Customers or Suppliers, By Region

Locations of Customers/Suppliers Statewide	Total Responses	% of Respondents w / Customers Suppliers or Both	% Indicating No Customers / Suppliers or Don't Know
Maine	130	94.9%	5.1%
Atlantic Canada	73	49.6%	50.4%
Quebec	71	46.7%	53.3%
Ontario	42	26.3%	73.7%
Northern NH-VT	79	54.7%	45.3%
Upstate NY	80	56.2%	43.8%
New England & Mid-Atlantic	112	80.3%	19.7%
Midwest US	87	60.6%	39.4%
Did Not Answer Question	15		
Northern Maine Sample			
Maine	69	94.5%	5.5%
Atlantic Canada	45	57.5%	42.5%
Quebec	40	49.3%	50.7%
Ontario	20	23.3%	76.7%
Northern NH-VT	41	52.1%	47.9%
Upstate NY	40	50.7%	49.3%
New England & Mid-Atlantic	55	72.6%	27.4%
Midwest US	41	52.1%	47.9%
Did Not Answer Question	3		
Southern Maine Sample			
Maine	61	95.3%	4.7%
Atlantic Canada	28	40.6%	59.4%
Quebec	31	43.8%	56.3%
Ontario	22	29.7%	70.3%
Northern NH-VT	38	57.8%	42.2%
Upstate NY	40	62.5%	37.5%
New England & Mid-Atlantic	57	89.1%	10.9%
Midwest US	46	70.3%	29.7%
Did Not Answer Question	12		

As could be expected, a slightly higher percentage of northern Maine businesses had customer or supplier relationships in Atlantic Canada (57% of all respondents) than southern Maine firms (40%). At the same time, a smaller percentage of Northern Maine respondents have customers and / or suppliers in Southern New England and the Middle Atlantic States (72%) and Midwest (52%), compared to southern Maine firms. There was relatively little northern / southern Maine variation in terms of the percentages of companies that did business with the other regions listed in the question.

Questions 5 and 9: How would you characterize your company's overall trends in sales to and purchased received from each of these regions over the past five years?

Respondents were also asked to characterize recent trends in sales to and purchases from the regions indicated in Table 4-5. Comparisons of numbers of firms reporting growing sales versus declining or flat sales, indicate that current"growth markets" for Maine firms are located in the Mid-Atlantic, Southern and Midwest US, as well as within Maine itself. As shown in Table 4-5, roughly 19% to 23% of all respondents answering the question, have recently experienced "growing" sales or exports to Atlantic Canada, Ontario and Quebec. Significantly larger percentages of respondents have experienced growing sales to other regions.

Table 4-5: Trends in Regional Trade Patterns of Survey Recipients

		Description of Trends - All Respondents				Respondents with Sales		
Trends in Sales to Regions	Total Responses	Growing	Declining	Stable/ Flat	Does Not Apply	Growing	Declining	Stable/ Flat
Maine	131	51.9%	4.6%	38.2%	5.3%	54.8%	4.8%	40.3%
Atlantic Canada	109	22.0%	5.5%	29.4%	43.1%	38.7%	9.7%	51.6%
Quebec	109	22.9%	5.5%	22.9%	48.6%	44.6%	10.7%	44.6%
Ontario	94	19.1%	3.2%	10.6%	67.0%	58.1%	9.7%	32.3%
Northern NH-VT	108	31.5%	3.7%	34.3%	30.6%	45.3%	5.3%	49.3%
Upstate NY	107	33.6%	4.7%	28.0%	33.6%	50.7%	7.0%	42.3%
New England & Mid-Atlantic	120	60.0%	1.7%	21.7%	16.7%	72.0%	2.0%	26.0%
Midwest US	111	45.0%	0.9%	17.1%	36.9%	71.4%	1.4%	27.1%
Did Not Answer Question	15							
Northern Maine								
Maine	70	47.1%	4.3%	44.3%	4.3%	49.3%	4.5%	46.3%
Atlantic Canada	56	35.7%	7.1%	26.8%	30.4%	51.3%	10.3%	38.5%
Quebec	55	27.3%	7.3%	27.3%	38.2%	44.1%	11.8%	44.1%
Ontario	44	18.2%	2.3%	11.4%	68.2%	57.1%	7.1%	35.7%
Northern NH-VT	54	29.6%	5.6%	35.2%	29.6%	42.1%	7.9%	50.0%
Upstate NY	50	38.0%	6.0%	30.0%	26.0%	51.4%	8.1%	40.5%
New England & Mid-Atlantic	58	60.3%	1.7%	25.9%	12.1%	68.6%	2.0%	29.4%
Midwest US	55	43.6%	0.0%	27.3%	29.1%	61.5%	0.0%	38.5%
Did Not Answer Question	4							
Southern Maine								
Maine	61	57.4%	4.9%	31.1%	6.6%	61.4%	5.3%	33.3%
Atlantic Canada	53	7.5%	3.8%	32.1%	56.6%	17.4%	8.7%	73.9%
Quebec	54	18.5%	3.7%	18.5%	59.3%	45.5%	9.1%	45.5%
Ontario	50	20.0%	4.0%	10.0%	66.0%	58.8%	11.8%	29.4%
Northern NH-VT	54	33.3%	1.9%	33.3%	31.5%	48.6%	2.7%	48.6%
Upstate NY	57	29.8%	3.5%	26.3%	40.4%	50.0%	5.9%	44.1%
New England & Mid-Atlantic	62	59.7%	1.6%	17.7%	21.0%	75.5%	2.0%	22.4%
Midwest US	56	46.4%	1.8%	7.1%	44.6%	83.9%	3.2%	12.9%
Did Not Answer Question	11							

The comparatively small percentage of Maine firms with growing Canadian sales, is obviously due in part to the fact that many firms did not have Canadian customers. To remove this influence, we have also calculated the percentages of firms reporting growing, declining and flat sales, only for those Maine firms with customers in each region. For respondents with Atlantic Canada customers, for example, slightly less than 38% characterized recent sales trends as "growing", while higher percentages of respondents characterized their sales to Quebec (45%) and Ontario (58%) as growing. By comparison, more than 70% of firms with customers in Southern NE, the Middle-Atlantic and Midwest US have recently experienced growing sales to those regions.

Among Maine companies with Canadian customers, the fact that more describe sales as "declining or flat" than growing, is perhaps a reflection of recent unfavorable exchange rates, as was indicated elsewhere in the survey. However, when asked to similarly characterize trends in purchases from these same regions, the ratios were fairly similar.

Questions 6 and 10: How likely is it that your company will increase shipments to or purchases from any of the following regions in the foreseeable future?

Table 4-6: Expected Future Regional Trade Patterns of Survey Respondents

Likelihood of Increasing Future Shipments (Sales) to...	Total Responses	% Indicating Somewhat to Highly Likely	% Indicating Somewhat to Highly Unikely
Statewide Response			
Within Maine	132	71.2%	28.8%
Atlantic Canada	121	39.7%	60.3%
Quebec	124	41.9%	58.1%
Ontario	113	25.7%	74.3%
Northern NH-VT	118	50.8%	49.2%
Upstate NY	116	49.1%	50.9%
New England & Mid-Atlantic	124	73.4%	26.6%
Midwest US	118	51.7%	48.3%
Did Not Answer Question	18		
Northern Maine			
Within Maine	70	71.4%	28.6%
Atlantic Canada	61	42.6%	57.4%
Quebec	66	47.0%	53.0%
Ontario	58	25.9%	74.1%
Northern NH-VT	59	42.4%	57.6%
Upstate NY	60	48.3%	51.7%
New England & Mid-Atlantic	63	69.8%	30.2%
Midwest US	60	51.7%	48.3%
Did Not Answer Question	5		
Southern Maine			
Within Maine	62	71.0%	29.0%
Atlantic Canada	60	36.7%	63.3%
Quebec	58	36.2%	63.8%
Ontario	55	25.5%	74.5%
Northern NH-VT	59	59.3%	40.7%
Upstate NY	56	50.0%	50.0%
New England & Mid-Atlantic	61	77.0%	23.0%
Midwest US	58	51.7%	48.3%
Did Not Answer Question	13		

Questions 6 and 10 asked respondents to comment on their near-term prospects of increasing sales and purchases to/from these same regions. The number of companies which expect to increase shipments (or sales) to these markets, generally follow recent trends. As shown, Maine firms are primarily looking to other US regions for sales growth. There is very little difference in expectations between southern and northern Maine companies on this issue.

In the short term, higher percentages of respondents expect to increase sales within Maine, to Southern New England and the Mid-Atlantic States, the Midwestern US, and Northern NH/VT, than to Canadian markets. Also, the percentage of firms that are unlikely to do more business in Canada, is much larger than the percentage of firms that expect to increase Canadian sales. However, the number of Maine firms that expect to increase sales to Atlantic Canada, Quebec and Ontario is slightly larger in each case, than the number of firms reporting growing sales to those regions over the past five

years. Roughly a third of all respondents appear to view these three Canadian regions as potentially growing markets.

When asked about expected purchases from these same regions, the ratios were almost identical to sales.

Questions 7 and 11: Please estimate the average monthly number of outbound and inbound shipments from this location, to customers located in Quebec/Ontario, Atlantic Canada, Northeast, Midwest & Western US markets (and points beyond), by the following transportation modes.

Table 4-7: Reported Average Monthly Outbound Shipments

	Number of Responses				Total Shipments			
Mode of Shipment	Ont/Que W Canada	Atlantic Canada	NY & Midwest	NE, Mid Atlantic & SE	Ont/Que W Canada	Atlantic Canada	NY & Midwest	NE, Mid Atlantic & SE
Statewide Sample								
Tractor Trailer	36	28	54	70	1,823	747	1,618	4,949
Heavy Trucks	4	7	8	13	22	17	132	258
Light Trucks	4	6	13	23	2	14	128	815
Rail (Intermodal)	2	2	5	8	0	0	67	90
Marine Cargo	3	4	3	5	1	7	50	12
Air Cargo	3	2	5	6	4	2	73	147
Total Trucks:	44	41	75	106	1,847	778	1,878	6,022
Don't Know		14						
No customersin these locations		17						
Did Not Answer Question		25						
Northern Maine								
Tractor Trailer	25	21	33	42	1,153	430	1,083	3,798
Heavy Trucks	1	3	3	4	0	13	5	21
Light Trucks	2	4	8	9	2	14	53	204
Rail (Intermodal)	2	2	4	5	0	0	63	71
Marine Cargo	3	4	3	5	1	7	50	12
Air Cargo	2	2	4	3	2	2	68	90
Total Trucks:	28	28	44	55	1,155	457	1,141	4,023
Don't Know		4						
No customersin these locations		8						
Did Not Answer Question		8						
Southern Maine								
Tractor Trailer	11	7	21	28	670	317	535	1,151
Heavy Trucks	3	4	5	9	22	4	127	237
Light Trucks	2	2	5	14	0	0	75	611
Rail (Intermodal)	0	0	1	3	0	0	4	19
Marine Cargo	0	0	0	0	0	0	0	0
Air Cargo	1	0	1	3	2	0	5	57
Total Trucks:	16	13	31	51	692	321	737	1,999
Don't Know		10						
No customersin these locations		9						
Did Not Answer Question		17						

Statewide, all survey respondents reported making an average of nearly 11,000 shipments per month (by all transportation modes), including 10,500 shipments by truck, to the four geographic regions listed in Table 4-7. Numbers of outbound truck shipments westbound to Ontario and Quebec, exceed eastbound shipments to Atlantic Canada by a factor of 2.3 to 1. Westbound shipments to Upstate NY, the Midwest and Western US also exceed the volumes headed for Ontario and Quebec. Respondents ship virtually no product to Canada and limited volumes westbound to US destinations, by rail. It is also interesting to note that total monthly shipments leaving northern Maine greatly exceed southern Maine. This appears to be consistent with the commodity flow data, which identified a high concentration of paper, pulp and wood products among the State's largest outbound commodities. These findings also suggest that improved

westbound highway access may be more important for freight traffic originating in Maine than eastbound access. The data also suggest that rail does not currently carry significant volumes of outbound freight to those regions that would be serviced by an east-west highway.

Inbound shipments are similarly profiled in Table 4-8. The reported numbers of monthly inbound shipments from Ontario / Quebec (550) and Atlantic Canada (493) are roughly comparable, but are fewer in number than reported inbound shipments from Upstate NY, the Midwest and Western US (797). Monthly inbound shipments from southern New England, the Mid-Atlantic and Southeastern US States (2,956) exceed the remaining three regions combined. The numbers of inbound shipments are also more evenly split between the northern and southern regions of the state.

Table 4-8: Estimated Average Monthly Inbound Shipments

	Number of Responses				Total Shipments			
	Ont / Que	Atlantic	NY &	NE, Mid	Ont / Que	Atlantic	NY &	NE, Mid
Mode of Shipment	W Canada	Canada	Midwest	Atlantic & SE	W Canada	Canada	Midwest	Atlantic & SE
Statewide Sample								
Tractor Trailer	33	34	50	71	468	433	587	2,159
Heavy Trucks	8	11	10	26	5	37	43	189
Light Trucks	8	7	14	30	21	19	101	472
Rail (Intermodal)	7	5	6	9	54	0	12	60
Marine Cargo	6	7	6	7	1	2	0	1
Air Cargo	4	5	9	10	1	2	54	75
Total Trucks:	49	52	74	127	494	489	731	2,820
Don't Know		17						
No customers in these locations		18						
No Response		25						
Northern Maine								
Tractor Trailer	17	21	23	35	356	364	212	1,003
Heavy Trucks	2	5	2	11	1	15	30	89
Light Trucks	5	3	9	14	21	9	81	224
Rail (Intermodal)	3	2	2	4	50	0	0	45
Marine Cargo	3	4	2	2	1	2	0	0
Air Cargo	2	3	4	4	1	2	19	21
Total Trucks:	24	29	34	60	378	388	323	1,316
Don't Know		8						
No customersin these locations		11						
No Response		7						
Southern Maine								
Tractor Trailer	16	13	27	36	112	69	375	1,156
Heavy Trucks	6	6	8	15	4	22	13	100
Light Trucks	3	4	5	16	0	10	20	248
Rail (Intermodal)	4	3	4	5	4	0	12	15
Marine Cargo	3	3	4	5	0	0	0	1
Air Cargo	2	2	5	6	0	0	35	54
Total Trucks:	25	23	40	67	116	101	408	1,504
Don't Know		9						
No customersin these locations		7						
No Response		18						

Questions 8 and 12: If applicable, please list the three most frequent destinations of your outbound and inbound shipments (City, town, county or Canadian census division):

A list of most frequent locations of inbound / outbound shipments is provided in Appendix C.

Question 13: Please estimate the recent (past 3 to 5 years) annual growth or decline in your company's inbound and outbound shipments of finished product, raw materials or supplies to and from each of the following regions and for each transportation mode.

Respondents were asked to report their recent annual rates of growth or decline in shipments for various modes of transportation (truck, rail, ship and air) and regions of origin / destination. Due to the very limited number of firms that reported data for modes other than truck, the only analysis possible was for truck shipments. Table 4-9 shows the number of firms that reported growth rates of inbound / outbound truck shipments to each region. The table also shows the current aggregate number of monthly truck shipments reported by these same firms (See Question 11). Finally, we applied the reported growth rates by each respondent to the number of shipments currently received, to develop an average rate of growth for all firms reporting.

Table 4-9: Reported Growth in Inbound/Outbound Truck Shipments

Region	Number Firms Reporting Growth Rates	Existing Monthly Shipments		Avg Growth - All Repondents	
		Outbound	Inbound	Outbound	Inbound
Ontario, Quebec & Western Canada	20	854	354	17.6%	46.2%
Atlantic Canada	24	778	489	31.8%	20.2%
Northern NH / VT, Upstate NY,Midwest & Western US	34	1,878	731	33.5%	15.2%
Southern NE, Mid-Atlantic & Southeastern US	29	6,022	2,820	39.9%	17.8%

As shown, the small number of firms that responded to this question are reporting substantial growth rates in shipments to / from all of the indicated regions. These results are somewhat inconsistent with the preceding questions and reflect the presence of very high percentage increases among a small sampling of firms. It is also possible that some respondents reported an aggregate percentage increase over the entire period, rather than an annualized growth rate as requested.

Question 14: If you currently ship or receive goods to/from any of the above regions by truck, please list the highway routes that are used most frequently by your company, your contracted carriers or your suppliers.

A list of most frequently used inbound / outbound transportation routes is provided in Appendix C.

Question 15: If you regularly send or receive goods by truck to or from the following regions, how often do your company, your suppliers or your contracted carriers encounter transportation-related problems in making or receiving timely and cost-effective deliveries?

The purpose of this question was to gain insight into the perceived reliability of Maine's existing highway system among those businesses which send or receive large volumes of truck freight. A minority of respondents reported experiencing "very frequent" or "frequent" problems in receiving truck deliveries from any region. However, the largest percentage of firms (more than 25%) reported encountering very frequent or frequent problems, when sending or receiving shipments to / from other locations within Central and Northern Maine. The percentage of Maine companies that encounter

transportation problems when shipping to/from Atlantic Canada (21%) or Quebec (22%), is also higher than the other regions listed. The smallest percentage of companies report encountering transportation problems, when shipping/receiving freight to or from Southern New England and points south (6.3%) and Upstate New York (9.5%).

Table 4-10: Reported Frequency of Transportation-Related Shipping Problems

Region	No. of Respondents with Shipments To/From Region	% w/Frequent or Very Freq. Problems	% Indicating Occasional Problems	% Indicating Rarely or or Never
Statewide Sample				
Central & Northern Maine	82	25.6%	28.0%	46.3%
Atlantic Canada	52	21.2%	25.0%	53.8%
Quebec	59	22.0%	27.1%	50.8%
Ontario & Western Canada	43	14.0%	16.3%	69.8%
Northern NH-VT	66	16.7%	27.3%	56.1%
Upstate NY	63	9.5%	22.2%	68.3%
New England & Mid-Atlantic	79	6.3%	26.6%	67.1%
Midwest & Western US	69	11.6%	20.3%	68.1%
Did Not Answer Question	31			
Northern Maine				
Central & Northern Maine	51	27.5%	21.6%	51.0%
Atlantic Canada	36	22.2%	27.8%	50.0%
Quebec	43	25.6%	25.6%	48.8%
Ontario & Western Canada	27	14.8%	18.5%	66.7%
Northern NH-VT	40	17.5%	27.5%	55.0%
Upstate NY	36	13.9%	27.8%	58.3%
New England & Mid-Atlantic	41	12.2%	26.8%	61.0%
Midwest & Western US	35	20.0%	17.1%	62.9%
Did Not Answer Question	12			
Southern Maine				
Central & Northern Maine	31	22.6%	38.7%	38.7%
Atlantic Canada	16	18.8%	18.8%	62.5%
Quebec	16	12.5%	31.3%	56.3%
Ontario & Western Canada	16	12.5%	12.5%	75.0%
Northern NH-VT	26	15.4%	26.9%	57.7%
Upstate NY	27	3.7%	14.8%	81.5%
New England & Mid-Atlantic	38	0.0%	26.3%	73.7%
Midwest & Western US	34	2.9%	23.5%	73.5%
Did Not Answer Question	19			

As would be expected from the statewide response, a higher percentages of firms based in Northern Maine report experiencing very frequent or frequent transportation problems to/from all regions, than do respondents located in Southern Maine. *These responses indicate a need to improve the reliability of truck movements into, out of and through Central and Northern Maine.*

Question 16: Please refer to the map at the beginning of the survey and consider the locations of your business, your customers and suppliers in relation to the proposed East-West Highway Corridors. Based upon your expectations of potential travel time savings offered by each, please rate each corridor on a scale of 1 (minimal/low use) to 5 (high level of use), in terms of its likelihood of being used as a shipping route to or from your place of business ...

Table 4-11 shows the number of respondents who ranked each conceptual corridor on the basis of its likely level of use by that company and its suppliers. Scores were then

aggregated and ranked. As shown, the reported average likelihood of use for the entire statewide sample did not exceed 3 (the mid-point) for any corridor. Average scores ranged from 2.2 (Corridor A) to 2.74 (Corridor B).

Table 4-11: Corridor Rankings Based Upon Projected Levels of Use

	Likely Level of Usage							
	Low				High	Don't	Total	Average
Conceptual Corridor	1	2	3	4	5	Know	Score	Score
Statewide Sample								
Corridor A-Trans Maine Trail	53	7	14	5	16	32	209	2.20
Corridor B-Route 2-9 Upgrade	39	8	9	19	21	31	263	2.74
Corridor C-Route 9-27 Upgrade	40	12	15	16	15	29	248	2.53
Corridor D-Coburn Gore 4-Lane	37	8	17	14	14	31	230	2.56
Corridor E-Southern Route	41	6	11	18	13	32	223	2.51
Northern Maine Respondents								
Corridor A-Trans Maine Trail	26	3	9	4	13	10	140	2.55
Corridor B-Route 2-9 Upgrade	20	6	4	11	12	12	148	2.79
Corridor C-Route 9-27 Upgrade	19	8	8	11	10	9	153	2.73
Corridor D-Coburn Gore 4-Lane	18	4	9	10	10	13	143	2.80
Corridor E-Southern Route	27	5	7	5	5	15	103	2.10
Southern Maine Respondents								
Corridor A-Trans Maine Trail	27	4	5	1	3	22	69	1.73
Corridor B-Route 2-9 Upgrade	19	2	5	8	9	19	115	2.67
Corridor C-Route 9-27 Upgrade	21	4	7	5	5	20	95	2.26
Corridor D-Coburn Gore 4-Lane	19	4	8	4	4	18	87	2.23
Corridor E-Southern Route	14	1	4	13	8	17	120	3.00

When respondents are isolated by region, clearer preferences among the corridors tend to emerge. However, even Northern Maine respondents, composite scores for all Corridors were below 3. Among Northern Maine firms, the 4-lane Calais to Coburn Gore Corridor (D) ranked highest, by a slight margin over the Route 2 and Route 9 upgrade (Corridor B) from Calais to Gilead. Southern Maine firms indicated that they would be most likely to use the four-lane Corridor (E) linking Lewiston-Auburn to the NH Border at Gilead. It is also interesting to note that the incremental improvement of the Calais to Coburn Gore route from a 2-lane upgrade (Corridor C) to a four-lane highway (Corridor D), did not produce a large increase in the anticipated use of that corridor among either statewide or Northern Maine respondents.

The percentage distribution of the above rankings is also provided in Table 4-12. The difficulty in servicing a dispersed statewide sample of businesses through a single highway corridor is clearly evidenced in this table. The percentage of respondents ranking each Conceptual Corridor a “1" (low use), exceeded those indicating “5" (high use) in each case, even within the individual regions.

Table 4-12: Percentage Distribution of Corridor Rankings

	Percent of Total Responses				
Conceptual Corridor	1	2	3	4	5
Statewide Sample					
Corridor A-Trans Maine Trail	55.8%	7.4%	14.7%	5.3%	16.8%
Corridor B-Route 2-9 Upgrade	40.6%	8.3%	9.4%	19.8%	21.9%
Corridor C-Route 9-27 Upgrade	40.8%	12.2%	15.3%	16.3%	15.3%
Corridor D-Coburn Gore 4-Lane	41.1%	8.9%	18.9%	15.6%	15.6%
Corridor E-Southern Route	46.1%	6.7%	12.4%	20.2%	14.6%
Northern Maine Respondents					
Corridor A-Trans Maine Trail	47.3%	5.5%	16.4%	7.3%	23.6%
Corridor B-Route 2-9 Upgrade	37.7%	11.3%	7.5%	20.8%	22.6%
Corridor C-Route 9-27 Upgrade	33.9%	14.3%	14.3%	19.6%	17.9%
Corridor D-Coburn Gore 4-Lane	35.3%	7.8%	17.6%	19.6%	19.6%
Corridor E-Southern Route	55.1%	10.2%	14.3%	10.2%	10.2%
Southern Maine Respondents					
Corridor A-Trans Maine Trail	67.5%	10.0%	12.5%	2.5%	7.5%
Corridor B-Route 2-9 Upgrade	44.2%	4.7%	11.6%	18.6%	20.9%
Corridor C-Route 9-27 Upgrade	50.0%	9.5%	16.7%	11.9%	11.9%
Corridor D-Coburn Gore 4-Lane	48.7%	10.3%	20.5%	10.3%	10.3%
Corridor E-Southern Route	35.0%	2.5%	10.0%	32.5%	20.0%

Question 17: Please rank the four corridors in terms of their greatest overall potential to be used by your company and suppliers (Rank 1 through 4, using 1 to indicate the Corridor which offers the greatest potential to be used.)

Table 4-13: Corridor Rankings

Conceptual Corridor	**Weighted Score**	**Rank**
Statewide Sample		
Corridor A-Trans Maine Trail	259	5
Corridor B-Route 2-9 Upgrade	226	3
Corridor C-Route 9-27 Upgrade	222	1-2
Corridor D-Coburn Gore 4-Lane	222	1-2
Corridor E-Southern Route	234	4
Northern Maine		
Corridor A-Trans Maine Trail	122	3
Corridor B-Route 2-9 Upgrade	132	4
Corridor C-Route 9-27 Upgrade	108	1-2
Corridor D-Coburn Gore 4-Lane	108	1-2
Corridor E-Southern Route	149	5
Southern Maine		
Corridor A-Trans Maine Trail	137	5
Corridor B-Route 2-9 Upgrade	94	2
Corridor C-Route 9-27 Upgrade	114	3-4
Corridor D-Coburn Gore 4-Lane	114	3-4
Corridor E-Southern Route	85	1

The ranking of corridors A-D was very close, with weighted scores ranging less than 15% from first to last. Respondents asked to rank the Corridors, with 1 signifying first preference. Among all respondents, Corridors C & D ranked first with the same score, followed by B, E and A. Among those respondents located in Northern Maine, the order was similar, with Corridor A moving from 5 to 3. Southern Maine firms, favored Corridors E and B.

Question 18: In your opinion, what is the likelihood that your preferred corridor would provide the following benefits to your company....?

Significant percentages of respondents indicated that their preferred Corridor could provide a range of economic benefits to their companies. The following table profiles the percentage of respondents who indicated that their preferred Corridor would be either "highly likely" or "likely" to provide a list of potential benefits, versus those who expressed the opposite view.

Table 4-14: Percentage of Respondents Perceiving Benefits from their "Preferred East-West Corridor

		% of Total Respondents	
Project Benefit	Total Responses	Indicating Highly Likely or Likely	Indicating Highly Unlikely or Unlikely
Statewide Sample			
Lower costs of shipping / receiving goods in Maine	119	38.7%	35.3%
Lower shipping costs to / from Canada & the Midwest	115	35.7%	45.2%
Increase your firm's business in US & Canadian Markets	115	25.2%	47.0%
Improve your firm's cost-competitiveness	117	35.9%	39.3%
Improve the ability of commuting workers to access your facility	118	21.2%	62.7%
Did Not Answer Question	32		

As shown, nearly 39% of respondents statewide believe that their preferred corridor would be highly likely or likely to lower their firms' shipping costs within Maine, compared to a slightly smaller portion of the sample (35%) who did not expect a lowering of shipping costs. When asked if the highway would increase the firms' cost competitiveness, these percentages were reversed. Smaller percentages of companies believe that their preferred corridors would help them do more business with Canada, and fewer still believed that their preferred routes would facilitate commuting for employees.

Obviously, the percentage of respondents that might actually derive economic benefits from a single east-west highway corridor through Maine, would be much smaller than indicated in Table 4-14. Table 4-15 further refines this question by first isolating the Conceptual Corridor that each respondent "preferred" by ranking 1 or 2 on Question 17. The table then shows the number of respondents who indicated that they would be "highly likely" or "likely" to derive economic benefits from that particular corridor, and the percent of the total survey sample represented by that number.

Table 4-15: Distribution of Positive Economic Impacts for Each Corridor

Respondents Indicating Highly Likely or Likely	Corridor Ranked Most Likely to be used					% of Total Respondents				
	A	B	C	D	E	A	B	C	D	E
Lower costs of shipping / receiving goods in ME	15	19	21	25	22	9.9%	12.5%	13.8%	16.4%	14.5%
Lower shipping costs to / from Canada & the Midwest	14	17	17	20	16	9.2%	11.2%	11.2%	13.2%	10.5%
Increase your firm's business in US & Canadian Markets	9	13	15	17	11	5.9%	8.6%	9.9%	11.2%	7.2%
Improve your firm's cost-competitiveness	16	19	23	24	18	10.5%	12.5%	15.1%	15.8%	11.8%
Improve the ability of commuting workers to access your facility	10	11	13	13	9	6.6%	7.2%	8.6%	8.6%	5.9%

For example, among survey respondents who ranked the 4-lane Calais to Coburn Gore Corridor (D) either first or second as their "preferred" corridor, 25 also indicated that this "preferred" corridor would be highly likely or likely to lower their shipping costs within Maine. From this response, one could conclude that Corridor D could be expected to lower shipping costs for about 16% of all the survey respondents. Among the remaining corridors, responses to the same question ranged from 9.9% (Corridor A) to 14.5% (Corridor E). As shown, Corridor D benefitted the largest number of companies in all categories. From this analysis, one can conclude that for the range of economic benefits listed, a single east-west highway corridor through Maine would, at best, serve roughly 9 to 16 percent of the 150+ companies who participated.

Question 19: Based on your preceding responses, what do you believe is the likelihood that your company will undertake the following actions in the future, if (your preferred) East-West Highway is built...

Participants were asked to respond to a range of potential actions they might undertake in response to the construction of their "preferred" east-west highway corridor. Table 4-16, shows responses to a scenario in which respondents asked to assume that their preferred corridor provided the "maximum" travel time savings indicated in the survey instrument.

Table 4-16: Range of Potential Responses to Highway Construction

		% of Total Respondents	
Potential Actions	Total Responses	Indicating Highly Likely or Likely	Indicating Highly Unlikely or Unlikely
Statewide Sample			
Expand at this location	118	22.9%	47.5%
Expand elsewhere in Maine	118	12.1%	72.4%
Relocate w/in ME closer to Highway	118	1.8%	88.5%
Expand in Canada	118	6.2%	81.4%
Expand elsewhere in the US	118	2.7%	83.2%
Relocate out of State	118	0.0%	92.9%
Did Not Answer Question	34		
Northern Maine			
Expand at this location	64	25.0%	43.8%
Expand elsewhere in Maine	64	13.1%	73.8%
Relocate w/in ME closer to Highway	64	1.7%	89.8%
Expand in Canada	64	6.7%	78.3%
Expand elsewhere in the US	64	0.0%	84.7%
Relocate out of State	64	0.0%	93.2%
Did Not Answer Question	12		
Southern Maine			
Expand at this location	54	20.4%	51.9%
Expand elsewhere in Maine	54	10.9%	70.9%
Relocate w/in ME closer to Highway	54	1.9%	87.0%
Expand in Canada	54	5.7%	84.9%
Expand elsewhere in the US	54	5.6%	81.5%
Relocate out of State	54	0.0%	92.6%
Did Not Answer Question	22		

Under this "best case" scenario, just under 23% of respondents, indicated that they would be "highly likely" or "likely"to expand operations at their existing facilities. The potential of a new highway to induce movement of existing firms around the state

appears to be minimal, as less than 2% indicated that they might move closer to a new highway. About 12% thought that they might expand at another location within the state, 6.2% might expand in Canada and less than 3% might expand elsewhere in the US.

Once again, these percentages reflect the collective responses to all of the preferred Conceptual Corridors. When results are isolated to a single specific corridor, the percentage of respondents who are likely to expand or relocate is greatly reduced.

Question 20: Based on your preceding responses, what do you believe is the likelihood that your company would undertake the following actions in the future, absent of any significant improvement to existing east-west transportation routes within the State of Maine?

The objective of question 20 was to determine whether a future "failure" to improve east-west transportation routes might have negative consequences in terms of discouraging companies from expanding or forcing them out of state. As shown, very little negative response was reported to result from inaction. In fact, more than 24% of respondents indicated that they will be "highly likely or likely" to expand at their current locations, absent of the highway's construction. This percentage was slightly higher than the response to the preceding question, which assumed the existence of a new highway.

Compared to the previous question, a slightly smaller percentage of firms would be likely to expand elsewhere in Maine if no highway improvements were made, fewer firms indicated that they would be likely to expand in Canada, absent of an east-west highway, but more may decide to expand elsewhere in the US. From the current perspective of Maine businesses who responded to this survey, east-west transportation issues do not appear to be an important influence on future expansion decisions. There is also no significant regional variation of opinion on this issue.

Table 4-17: Potential Response - Absent of Highway Construction

		% of Total Respondents	
		Indicating	Indicating
	Total	Highly Likely	Highly Unlikely
Potential Actions	Responses	or Likely	or Unlikely
Statewide Sample			
Expand at this location	119	24.6%	44.1%
Expand elsewhere in Maine	119	9.4%	70.1%
Relocate within Maine	119	1.7%	85.2%
Expand in Canada	119	1.7%	84.3%
Expand elsewhere in the US	119	7.0%	77.4%
Relocate out of State	119	0.9%	89.6%
Did Not Answer Question	33		

Question 21: Recognizing that the proposed East-West Highway will carry significant construction costs, and that higher costs will be incurred to achieve increased levels of improvement, where do you believe the project should rank in terms of priority, among the range of transportation investments which may be undertaken in Maine over the next 20 years?

Statewide, a minority of respondents with an opinion on the issue, ranked the east-west highway as either a "highest" or high"priority over the next 20 years, with the 4-lane Corridors (35%) ranking lower among respondents than a 2-lane improvement (43.2%).

Significant numbers also ranked either option as either "low or not a priority", 31.5% for the 2-lane and 43.5% for the 4-lane corridors.

Table 4-18: Ranking of an East-West Highway Among Statewide Transportation Prioities

	Two-Lane Corridors			Four-Lane Corridors		
East-West Highway Priority Level	Statewide Sample	Northern Maine	Southern Maine	Statewide Sample	Northern Maine	Southern Maine
Highest Priority	27	20	7	22	16	6
High Priority	21	12	9	19	9	10
Somewhat of a Prioity	28	14	14	25	12	13
Low Priority	16	8	8	21	12	9
Not a Priority	19	7	12	30	14	16
Don't Know / No Response	13	6	7	7	4	3
Did Not Answer Question	28	9	19	28	9	19
Totals:	152	76	76	152	76	76
	Percent Distribution of Respondents with Opinions					
Highest Priority	24.3%	32.8%	14.0%	18.8%	25.4%	11.1%
High Priority	18.9%	19.7%	18.0%	16.2%	14.3%	18.5%
Somewhat of a Prioity	25.2%	23.0%	28.0%	21.4%	19.0%	24.1%
Low Priority	14.4%	13.1%	16.0%	17.9%	19.0%	16.7%
Not a Priority	17.1%	11.5%	24.0%	25.6%	22.2%	29.6%
Totals:	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Regional differences of opinion are more apparent on this issue than some of the other survey questions. Among Northern Maine businesses, a majority (52.5%) rank the two-lane Corridors as either a highest or high priority, compared to only 24.6% who hold the opposite view. It is interesting to note that the four-lane Corridors rank lower than the two-lane even among northern Maine firms, with only 39.7% characterizing them as a highest or high priority, compared to 41% who characterized them as a low priority or not a priority.

The remaining survey questions primarily addressed issues related to US / Canada trade issues, tolling issues and shipping costs. Findings from these questions have been analyzed in less detail and are summarized below.

Question 22: Over the past 10 years, tariffs on most trade between the US and Canada have been eliminated as part of the US-Canada and North America Free Trade Agreements. Has the reduction in tariffs allowed you to expand business (either purchases or sales) in Canada?

Roughly 28% of the survey respondents who answered this question, indicated that they had expanded trade with Canada as a result of tariff reductions. More than half (54%) said no and the balance did not know or had no opinion. A higher percentage of respondents, nearly 35%, expected that these trade agreements would their interest in doing more business with Canada in the future. These responses are slightly lower than the overall percentage of firms who indicated that they currently do business in Canada.

Question 23: On a scale of 1 (not important) to 5 (very important), how would you rate the following factors in terms of their importance as an impediment to your company's current ability to increase business (either purchases or sales) with Canada?

Respondents were asked to rate ten listed impediments to increased Canadian trade in order of importance from 1 (none) to 5 (high). Among those, regulations / red tape

ranked highest (3.46), followed by exchange rates (3.44) and competition from other US & Canadian firms (3.30). Among other factors that ranked above 3.0, "shipping costs" ranked 4th (3.24) followed by Canadian economic conditions (3.19), and border crossing / Canadian Customs (3.09). The quality of "highway access" to Canada scored 3.04, 7th among the ten issues listed. From these responses, it is apparent that from the current perspective of Maine businesses, economic and regulatory issues are a greater impediment to increased trade with Canada than are issues of transportation cost and access.

Question 24: Please indicate and rank by order of importance the three primary impediments to your company's ability or desire to establish or expand business operations in Canada. (Feel free to cite other factors not listed above.)

A list of all impediments listed by survey respondents appears in Appendix C.

Questions 25 and 26: On a scale of 1 (not an issue) to 5 (a major issue), are the following factors currently an issue with your company, in terms of their impact on the volume of trade you do with Canada? To what extent could they become an issue in the future if the proposed east-west highway is built?

Respondents were asked to rate 4 specific issues on a scale of 1 (not an issue) to 5 (major issue), in terms of their perceived importance, currently and in the future, as impediments to Canadian trade. The intent of the question was to determine whether other potential transportation issues, in addition to the quality of highways, could impact US / Canada trade. The issues listed were cost of tolls, cost of fuel, border crossing congestion and differential US / Canadian truck weights.

Because a only a third of respondents appeared to have an interest in Canada trade, it is not surprising that no issue scored above 3 (current or future). Congestion / delays at border crossings generated most concern both as a current (2.30) and future (2.61) issue. Cost of tolls showed the greatest jump in concern rising from a score of 1.58 currently to 2.45 as a future concern. (This perhaps reflects a concern that an east-west highway could be heavily tolled.) Cost of fuel rose from 2.12 (current) to 2.33 (future) and differential US / Canadian Truck weights rose from 2.07 (current) to 2.35 (future). Not surprisingly, the lower permitted truck weights on US interstates compared to Provincial highways, is more of a concern to Canadian firms than Maine businesses.

Question 27: If all or portions of the East-West Highway are tolled at the following average costs per mile, how would those toll costs influence your company's usage of the highway. Assume that these toll rates apply to a five-axle tractor trailer traveling on a 4-lane divided highway. Also assume that toll rates applied to other classes of commercial vehicles will be proportionally similar to existing toll highways.

Table 4-19: Potential Impact of Tolling on East-West Highway Truck Use

	Reduction in Travel / Use at Average Toll / Mile				
Average Toll Rate	No Change	Somewhat	Very Likely	Will Not Use	Don't Know
< $0.10 / Mile	38	19	8	8	49
$0.10 - $0.15 / Mile	19	26	15	13	49
$0.16 - $0.20 / Mile	12	14	18	27	51
$0.21 - $0.30 / Mile	7	9	13	40	53
$0.31 - $0.40 / Mile	7	5	12	45	52
>$0.40 / Mile	7	4	7	49	54
Did Not Answer Question	27				
	% Distribution / Respondents with Opinions				
< $0.10 / Mile	52.1%	26.0%	11.0%	11.0%	
$0.10 - $0.15 / Mile	26.0%	35.6%	20.5%	17.8%	
$0.16 - $0.20 / Mile	16.9%	19.7%	25.4%	38.0%	
$0.21 - $0.30 / Mile	10.1%	13.0%	18.8%	58.0%	
$0.31 - $0.40 / Mile	10.1%	7.2%	17.4%	65.2%	
>$0.40 / Mile	10.4%	6.0%	10.4%	73.1%	

Participants were asked how various hypothetical toll rates (applied to five axle tractor trailer vehicles) might impact their company's use of an east-west highway. As shown, a large number of respondents either did not answer this question or responded "don't know". Among persons with opinions, more than half indicated that toll rates of less than 10¢ per mile would not influence their usage of the highway, compared to only 22% who would be "very likely" to reduce travel or "would not use" a tolled highway. However, substantial resistance to tolls is indicated at higher rates among those persons with an opinion. At an average toll rate of 16¢-20¢ per mile, the combined percentage of respondents with opinions who would be "very likely" to reduce travel or "would not use" the highway, rises to nearly 64%. At average toll rates above 20¢ per mile, the majority of respondents with opinions would not use the highway.

Remaining Survey Questions

Responses to questions 28 and 29 related to average shipping costs per ton for truck freight and the distribution of truck freight by types of carriers used. The number of responses received were insufficient to return usable data. Raw totals are provided in Appendix C.

Survey Comments

Comments reported by survey respondents are listed verbatim in Appendix C of this report.

Summary Conclusions

As indicated above, this survey effort returned data from a significant sample of Maine's largest companies. The survey returned an equal number of responses from both northern and southern regions of the state and included representation among several industry groups. Highlights include the following:

- **The survey effort specifically targeted companies that would be most likely to have an interest in the proposed east-west highway**. The survey was administered to a cross-section of the State's largest companies, in those industries which are most sensitive to transportation issues. In total, just over 40% of the sample, more than 500 companies, were are located in northern Maine while the balance of nearly

800 firms were located in the more heavily populated southern region.

- **A well-represented cross section of responses was received, both geographically and among industry groups.** More than 150 responses were received, an 11.5% return on from the initial mailing list. Returns were equally distributed between the northern and southern regions, with 76 returns received from each. In total, these companies have more than 19,600 full-time employees, including more than 16,300 workers at the locations represented in the survey.
- **Survey respondent already have significant numbers of customers and suppliers in regions that could be made more accessible by an east-west highway.** More than 49% of respondents, statewide, have customers and/or suppliers in Atlantic Canada, 47% in Quebec, 26% in Ontario/Western Canada, 55% in northern NH/VT, 56% in Western NY and 60% in the Midwest and Western US. These percentages indicate that at least half of the statewide sample currently does business in regions that could be made more accessible to the interior Maine, via an east-west highway corridor.
- **More Maine firms characterize their markets to the south and west as "growing" than Canadian markets.** For respondents with Atlantic Canada customers, less than 38% characterized recent sales trends as "growing", while higher percentages of respondents characterized their sales to Quebec (45%) and Ontario (58%) as growing. By comparison, more than 70% of firms with customers in Southern NE, the Middle-Atlantic and Midwest US have recently experienced growing sales to those regions. Among Maine companies with Canadian customers, the fact that more describe sales as "declining or flat" than growing, is perhaps a reflection of recent unfavorable exchange rates, as was indicated elsewhere in the survey.
- **Roughly a third of all respondents appear to view Canada as a potential growth market in the future.** Maine firms are primarily looking to other US regions for sales growth. In the short term, higher percentages of respondents expect to increase sales within Maine, to Southern New England and the Mid-Atlantic States, the Midwestern US, and Northern NH/VT, than to Canadian markets. Also, the percentage of Maine firms that are unlikely to do more business in Canada, is much larger than the percentage of firms that expect to increase Canadian sales. There is very little difference in expectations between southern and northern Maine companies on this issue.
- **The survey findings suggest that improved westbound highway access may be more important for freight traffic originating in Maine than eastbound access.** Numbers of outbound truck shipments westbound to Ontario and Quebec, exceed eastbound shipments to Atlantic Canada by a factor of 2.3 to 1. Westbound shipments to Upstate NY, the Midwest and Western US also exceed the volumes headed for Ontario and Quebec. It is also interesting to note that total monthly shipments leaving northern Maine greatly exceed southern Maine.
- **Rail does not currently carry significant volumes of outbound freight to those regions that would be serviced by an east-west highway.** Respondents ship virtually no product to Canada and limited volumes westbound to US destinations, by rail.
- **Although a minority of Maine firms appear to encounter problems when shipping or receiving goods to/from the regions listed in the survey, problems are significantly greater in those areas which could be improved by an east-west highway.** The largest percentage of firms (more than 25%) reported encountering

very frequent or frequent problems, when sending or receiving shipments to/from other locations within Central and Northern Maine. The percentage of Maine companies that encounter transportation problems when shipping to/from Atlantic Canada (21%) or Quebec (22%), is also higher than the other regions listed. The smallest percentage of companies report encountering transportation problems, when shipping/receiving freight to or from Southern New England and points south (6.3%) and Upstate New York (9.5%).

- **No single east-west corridor clearly emerges as a preferred alternative among survey respondents.** When respondents were asked to rank each conceptual corridor on the basis of its likely level of use by that company and its suppliers, the reported average for the entire statewide sample did not exceed 3 (the mid-point) for any corridor. Even Northern Maine respondents, composite scores for all Corridors were also below 3. The percentage of respondents ranking each Conceptual Corridor a "1" (low use), exceeded those indicating "5" (high use) in each case, even when responses were isolated for northern and southern Maine.

- **As could be expected there are regional differences in projected levels of use and "preference" among the five Corridors.** Among Northern Maine firms, the 4-lane Calais to Coburn Gore Corridor (D) ranked highest, by a slight margin over the Route 2 and Route 9 upgrade (Corridor B) from Calais to Gilead. Southern Maine firms indicated that they would be most likely to use the four-lane Corridor (E) linking Lewiston-Auburn to the NH Border at Gilead. It is also interesting to note that the incremental improvement of the Calais to Coburn Gore route from a 2-lane upgrade (Corridor C) to a four-lane highway (Corridor D), did not produce a large increase in the anticipated use of that route, among either statewide or Northern Maine respondents. When asked to rank the Corridors, with 1 signifying first preference, among all respondents statewide, Corridors C & D ranked first with the same score, followed by B, E and A. Among respondents located in Northern Maine, the order was similar, with Corridor A moving from 5 to 3. Southern Maine firms, ranked Corridors E and B one and two.

- **When presented with a list of possible economic benefits that might arise from the construction of their "preferred" east-west highway corridor, about 20% to 40% of the respondents actually expected their companies to benefit.** Nearly 39% of respondents statewide believe that their preferred corridor would be "highly likely" or "likely" to lower their firms' shipping costs within Maine, compared to a slightly smaller portion of the sample (35%) who did not expect a lowering of shipping costs. When asked if the highway would increase the firms' cost competitiveness, these percentages were reversed. A smaller percentage of companies (25%) believe that their preferred corridors would help them do more business with Canada, and fewer still (21%) believed that their preferred routes would facilitate commuting for employees. Because of the geographic dispersion of survey respondents, the maximum percentage of firms that are likely to derive economic benefits from any single Conceptual Corridor reduces these reported rations by more than half.

- **An east-west highway is not likely to cause a significant movement of firms within the State.** Just under 23% of respondents, indicated that they would be "highly likely" or "likely"to expand operations at their existing facilities if their "preferred" east west corridor was built. The potential of a new highway to induce movement of existing firms around the state appears to be minimal, as less than 2% indicated that they might move closer to a new highway. About 12% thought that they might expand at another location within the state, 6.2% might expand in

Canada and less than 3% might expand elsewhere in the US.

- **From the current perspective of Maine businesses who responded to this survey, the State's failure to improve east-west transportation routes would not appear to have a negative influence on future expansion decisions.** More than 24% of respondents indicated that they will be "highly likely or likely" to expand at their current locations, absent of the highway's construction. This percentage was slightly higher than the response to the preceding question, which assumed the existence of a new highway. A slightly smaller percentage of firms indicated that they would be likely to expand elsewhere in Maine if no highway improvements were made, fewer firms indicated that they would be likely to expand in Canada, absent of an east-west highway, but more may decide to expand elsewhere in the US.

- **Survey respondents are split concerning where an east-west highway should rank as a priority among other transportation needs over the next 20 years.** Statewide, a minority of respondents with an opinion on the issue, ranked the east-west highway as either a "highest" or high"priority over the next 20 years, with the 4-lane Corridors (35%) ranking lower among respondents than a 2-lane improvement (43.2%). Significant numbers also ranked either option as either "low or not a priority", 31.5% for the 2-lane and 43.5% for the 4-lane corridors. Among Northern Maine businesses, a majority (52.5%) rank the two-lane Corridors as either a highest or high priority, compared to only 24.6% who hold the opposite view. It is interesting to note that the four-lane Corridors rank lower than the two-lane even among northern Maine firms, with only 39.7% characterizing them as a highest or high priority, compared to 41% who characterized them as a low priority or not a priority.

- **Among impediments to increased Canada trade faced by Maine companies, transportation issues rank lower than economic and regulatory issues.** Respondents were asked to rate ten listed impediments to increased Canadian trade in order of importance from 1 (none) to 5 (high). Among those, regulations / red tape ranked highest (3.46), followed by exchange rates (3.44) and competition from other US & Canadian firms (3.30). Among other factors that ranked above 3.0, "shipping costs" ranked 4th (3.24) followed by Canadian economic conditions (3.19), and border crossing / Canadian Customs (3.09). The quality of "highway access" to Canada scored 3.04, 7th among the ten issues listed.

- **Respondents would accept limited tolling of an east-west highway.** Among persons with opinions, more than half indicated that toll rates of less than 10¢ per mile would not negatively influence their usage of the highway. However, substantial resistance to tolls is indicated at higher rates among those persons with an opinion. At an average toll rate of 16¢-20¢ per mile, the combined percentage of respondents with opinions who would be "very likely" to reduce travel or "would not use" the highway, rises to nearly 64%. At average toll rates above 20¢ per mile, the majority of respondents with opinions would not use the highway.

V
Appendices

Appendix A: Illustrative Verbatim Comments-Survey of Tourism Leaders

"There are no difficulties in getting to our site. It takes Canadians 5-6 hours to get here but that is not a problem."

"Maine is a bottleneck. The Canadians have a good highway on their side then it just falls apart on the Maine side."

"(I) do not want it to come through here - would prefer it to stay lower. (The highway) would detract from the wilderness experience of this area."

"Don't just build a road. Saleability is a big issue. (We) need to know why it is going where it is going."

"Need to balance opening up the north and keeping it close to the existing growth."

"Could potentially hurt us if it goes up north of Bethel into Canada (Coburn Gore). This would push business out of the country into Canada."

"Needs to be set up like a feeder - like the pipeline. The pipeline has specific points it needs to hit. The highway has to be an economic feeder."

"(The east-west highway) won't benefit anything north of Lincoln."

"Areas like this are remote and we want to keep it that way but at the same time everyone wants access. The places that are not going to have any easier access because the highway will not touch their areas will have to do more marketing to promote their areas and convince people that it is worth their while to come the distance. Right now they are all hard to get to so they stand together. When one area becomes easier to get to, the others will have to market to get people to come the distance.

"Would the volume of traffic be too much for this area?"

"No negatives (about the proposed east-west highway) unless someone is opposed to growth, opposed to tourism, and opposed to economic growth."

"The highway would allow visitors to combine trips. Instead of deciding whether to go to Niagara Falls or the Maine Coast, visitors would be more likely to combine the two trips into one. Visitors would be more likely to group vacation spots with the addition of an east-west highway in the sate of Maine."

"The roads will not stop people from visiting. If people don't want to be on the roads with loggers then they shouldn't be coming to Maine. The question is 'how fast do we want people to go through the state?' If they go slow they can actually see the state."

"It is national transportation to go through NH and VT or up through Canada through Coburn Gore to connect the largest populations - New Brunswick/ Nova Scotia and Montreal/ Ontario."

"Maine is more isolated than it needs to be. Isolated due to positioning, political boundaries and infrastructure."

"It is not easy to go east to west in this state."

"We will be happier/better off with the highway but it will change the movement of the state."

"People here are nervous about it because they feel it will take tourists off Rte. 1."

"The highway would put us in the middle of something instead of always being at the end."

"May move people too fast. People won't enjoy the slower pace of Maine. Don't want to become Anytown USA."

Tourism Leaders Interviewed

Region	Contact
Bar Harbor/Ellsworth	
Ellsworth Chamber of Commerce	Mickey Sunters, Executive Director
Acadia National Park	Len Bobinchock, Deputy
Bar Harbor House	Karen Smith Bigelow, Reservations Manager and Jan Marie Miller, Administrative Assistant
Rockland/Camden	
Camden Chamber of Commerce	Kathy Lathum, Executive Director
Rockland Chamber of Commerce	Dave Emery, Executive Director
Tourism and Marketing Committee	Jeanne Freedman
Bangor	
Bangor Chamber of Commerce	Candy Guerette, Executive Director
Former Chairman of the Bangor City Council	Atty. Tim Woodcock
Lafayette Hotels/ Franco-American HeritageTrail	Peter Daigle, Chief Operating Officer/ Innkeeper
Bangor Convention and Visitors Bureau	Donna Moreland Fichtner, Executive Director
Bangor Chamber of Commerce	Mary Hajjar, Director of Convention and Membership Sales
Greenville	
Moosehead Lake Region Chamber of Commerce	Toni Blake, Executive Director
The Birches	John Willet, Owner
Millinocket	
Katahdin Area Chamber of Commerce	Brian Wiley, President
Bethel	
Bethel Chamber of Commerce	Robin Zinchuk, Executive Director
Sunday River	Chip Seamens, General Manager
Gray Marketing	Wende Gray, Owner
Old Orchard Beach	
Old Orchard Beach Chamber of Commerce	James Harmon, Executive Director

Wells/Ogunquit	
Wells Chamber of Commerce	Brian Harrington, President
Ogunquit Chamber of Commerce	David Moulton, Executive Director
York County Coalition of Chambers	Greg Burke, Marketing
Rangely	
Rangely Chamber of Commerce	Evelyn McAllister, Executive Director
Rangely Region Economic Growth Org.	Bob Summers, President
Carrabasset	
Sugarloaf Chamber of Commerce	David Gurnsey, President
Sugarloaf Ski Area	Bob Wentzel, Director of Marketing
Other	
Ski Maine	Greg Sweetser, Director
Aroostock Center Mall	John Dickey, General Manager
Forum Francophone Des Affaires (FFA)	Dan Bretton, Board Member
Bangor International Airport	Bob Zieglaar, Airport Director
Cyr Bus Lines	Joe Cyr, owner

Appendix B: Telephone Survey Instruments and Detailed Tables

Appendix C: Maine Business Survey Instrument & Comments

Survey C